Investigating customer expectation and customer satisfaction in a services department of the NWU using selected operations management principles

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Solemn declaration by the student

I, Maria E. Ackermann, herewith declare that the assignment which I herewith submit to the North-West University as partial completion of the requirements set for the MBA degree is my work.

Abstract and keywords

This study investigates service delivery in the Higher Degree Administration (HDA) office of the North-West University (NWU). For this study, the relationship between customer expectation and customer satisfaction is the main topic studied within the boundaries of the discipline of operations management (OM) and a selection of its ten elements. The point of departure is that OM theory proposes that the use of OM principles improves the operations of any organisation. The operations in this study comprise service delivery to internal and external customers of the NWU. The interaction under investigation is the interaction between the HDA office and its customers. The customer pool includes students, staff, and external persons with an interest in the services offered by the NWU through the HDA office.

The elements of OM that were selected for this study are quality and process design. These two elements have a direct application in a service setting. Quality as an OM element provides tools to monitor service operations as well as tools to improve service delivery and customer satisfaction.

Customer opinions (also called the voice of the customer) regarding customer satisfaction and improvement recommendations were collected via surveys. For the study to investigate customer satisfaction, the 5 SERVQUAL elements, namely reliability, assurance, tangibility, empathy, and responsiveness were used to analyse the secondary data. For the study to provide suggestions for improving HDA *service delivery*, process design (an element of OM) was used.

The perceived long-term effect that customer satisfaction has on an operation includes improved profit for the organisation and customer loyalty. The goal of this study is to enable the HDA office to render services that could be labelled as having ‘service excellence’, and for it to be the standard.

Keywords:

Operation Management, Quality, Process design, Customer expectation, Customer satisfaction, Interaction, Excellence, Survey, SERVQUAL, Continuous improvement.

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Chapter 1

1. Introduction, background, and problem statement

1.1 Introduction

‘Operations may not run the world, but it makes the world run’ (Slack & Brandon-Jones, 2019: xv). ‘Operations form the core of any business’ (Pardillo, 2020:2).

The quotes above confirm the reality of the role of operations in any business. Operations are defined and studied in the field of operations management (OM). OM principles could be implemented to improve operational output in any organisation. Furthermore, the importance of operations is acknowledged in the amendment sections of the NWU’s Annual Performance Plan (NWU, 2023a) as well; in this document, reference is made to eight different aspects of operations in the NWU environment, with a focus on its digital transformation strategy (DBS) (NWU, 2023). Thus, operations play a vital role in aspiring to realise the goals set out in the NWU’s official documents. Examples are: the NWU Strategy - 2024 and beyond, which includes being a leading university in Africa (NWU, 2018; NWU, 2023e). Another example is, the Annual Performance Plan (NWU, 2023) that refers to the use of operational management as a tool to meet performance goals.

From the information provided above, it could be deduced that operations are also the core business of the NWU as an organisation. This study investigates the operations of the Higher Degree Administration (HDA) office. This office supports all academic and administrative activities regarding master’s and doctoral studies at the NWU. There is a direct interest in the role of the researcher to the study, as the researcher is also responsible for the daily operations in the HDA office. These responsibilities include ensuring the quality of services rendered daily and process design.

Therefore, the researcher undertook to investigate how the use of selected OM principals, -elements, -tools, and -techniques can be used to improve service quality output and customer satisfaction in the HDA office. The investigation is underpinned by the body of knowledge of OM.

The benefit of implementing OM elements, -tools, -concepts, and -techniques, as highlighted by Heizer *et al*. (2016:43), is that it provides a way to ensure the proper

management of operations. According to them, effective operations contribute to the success of any organisation. They highlight that both a services and manufacturing operations benefit from the use of OM principles. They continue to equate productiveness to efficiency, and state that implementing OM principles in an organisation contributes to improved outputs (Heizer *et al.*, 2016:52).

Therefore, the point of departure was, first, to propose the use of selected OM principles in a services and support office; second, to investigate whether it may result in the improved output quality of day-to-day tasks; and third, to test whether the services rendered yielded customer satisfaction.

The statements contained in the NWU's Success Model) provide additional motivations for considering operation management principles in the HDA office; they create an expectation of how business operations at the NWU should be conducted: 'to conduct its core business at a high standard…' (NWU, 2018). This statement creates a premise for customers to expect service of a high standard from the institution. This study investigated whether the expectation created by these statements were met via the services delivered by the HDA office.

To reach the objective of the study mentioned above, selected OM principles related to customer expectation and customer satisfaction were studied, namely quality and process design. The HDA office's service interaction was investigated for this study.

The HDA office gives administrative support to master and doctoral students, as they complete their studies. The expected application of the study would be to improve service levels to reach service excellence. According to Fitzsimmons and Fitzsimmons (2008:107), quality can create a competitive advantage for a business when it reaches service excellence levels; therefore, it would be required that customer expectations are not only met but also exceeded (Fitzsimmons & Fitzsimmons, 2008:108). The next section contains a brief overview of the background of this study.

1.2 Background to the study

The HDA office functions within the bigger picture of the support and administrative services of the NWU. The operations in the office focus on supporting specific internal and external customers of the NWU daily. The management of operations

in the HDA office should be aligned with the NWU's Strategic Plan (the 2018 publication was updated in 2023), the Success Model Statements, as well as the NWU's Annual Performance Plan (NWU, 2018/2023e; NWU,2020a; NWU,2023a) The purpose of the HDA office is to give support to students who wish to enrol for a master's or a doctoral degree. The tasks performed by the HDA office include, among others, administrative support tasks when requested by students, external parties, or staff with an interest in master's and doctoral student affairs. The tasks are guided by a set of standard operating procedures (NWU, 2020b).

The standard operating procedures are guided by a process design that prescribes the procedure, information, and forms related to each student's life cycle steps that they must complete to progress in their studies. The HDA office also adheres to quality principles as described in its Quality Manual (NWU, 2020b), such as monitoring completed tasks and guiding checklists for important activities; the manual also includes a description of the tasks performed by the HDA. These tasks are directed by several standard processes that are completed per staff member. The standard operation procedures guide the tasks that are to be performed per staff member at their workstations. The services are rendered daily to the internal and external customers of the HDA office. Different platforms are used to connect with the customers to deliver the services, such as the telephone, emails, WhatsApp messages, and walk-in client services. These customers have a customer experience as a result of their interaction with the HDA office. This study investigates ways in which this interaction could constantly yield a positive customer experience.

The strategy statement of the HDA office, published in its Quality Manual (NWU, 2020b) under Paragraph 5.1 also states that this office undertakes to provide a positive customer experience: 'to render an aligned professional and effective service, to enable equity of access, and to provide a supportive administrative experience to every master's and doctoral student with competent staff' (NWU, 2020b).

The dream statement contained in the Quality Manual (NWU, 2020b) supports an approach that seeks quality in services delivered: 'a competent, caring and cared-for team which embraces and enhances students' dreams and aspirations to pursue higher degree studies. A sufficiently equipped team rendering quality service to our stakeholders' (NWU, 2020b: par 5.2).

From what is mentioned above, it could be stated that that OM principles are already imbedded in the day-to-day operations of the HDA office; these include *the customer's experience* and helping students reach their dreams through *quality services* (NWU, 2020b).

The first task of this study was to establish how the OM principles that are already applied in the office affected its services and its customers' experience. The second task of this study was to use the same principles to provide suggestions on how to improve customer services via the findings of the first task's investigation to reach levels of service excellence as a standard, instead of only a high standard of services.

The staff of the HDA office interacts with its customers daily; this interaction comprises services such as sharing needed information, providing forms or documents that are available from the system, and giving assistance regarding the student's life cycle steps. After an interaction with a client via email, the opportunity was given to customers to evaluate the service rendered. They were provided with a link to a survey that they may complete if they wish to, which means that it is a voluntary activity.

The purpose of this study is to investigate whether the level of services rendered by the HDA office meets the expectations of its customers. The NWU Strategy 2015-2025 mentioned in Chapter 1 (which was still the published document at the start of this study in 2021, (*See* point 1.1) creates an expectation for service of a high standard. (The NWU Strategy was updated in 2023, and it is incorporated in Chapter 5).

In this study, understanding the services concept and its related elements is of paramount importance. Therefore, Chapter 2 of this study is devoted to this topic.

Services are delivered daily by support staff of the NWU, such as the HDA office. Services include interactions with students, examiners, other support staff and academic staff seeking assistance with regard to a diverse number of issues that relate to their role at the NWU. As a support service, the purpose of the HDA office is to give support to students who wish to complete a master's or a doctoral degree. These tasks comprise administrative support tasks. Different platforms are used to connect with the customer, and there are fixed process steps that guide the services rendered.

Multiple role players from different divisions, as well as externally, are involved in or affected by the operations of the HDA office. All these role-players are regarded as the customers of the HDA office. The investigation aims to establish whether the HDA office's daily activities meet the customers' expectations for service delivery, as set by the NWU.

Customer satisfaction and helping students reach their dreams are part of the strategy statements of this division as published in the Quality Manual. This document includes a description of the tasks performed by the HDA (NWU, 2020b), These tasks are directed by several standard processes that are completed per staff member.

Concerning the daily operations in the HDA office, customer expectations and customer satisfaction are dependent on the consistent performance of the team. It would require a proper process design that is supported by consistency and quality output, where staff are always completing the correct procedures at a high standard - even when under strain due to peak times. Current challenges in the operations in the HDA office are the constraints created by peak times and increased workload per workstation. Peak times may create workload increases that affect quality output (Lopetegui *et al.,* 2008:2). This study will also seek to investigate if these times of constraint affected service delivery to clients.

Two OM elements that are investigated in this study are quality and process design, as mentioned previously. OM principles such as quality and process design are directed at improving operations output towards meeting customer expectations. Therefore, it is apparent that a study on the use of selected OM principles is beneficial for a services department, including the HDA office.

A part of the investigation is to determine how to maintain high-quality service levels that can exceed the customer's expectation. The expected outcome is service excellence, which should be the goal of a 'services operation' according to Fitzsimmons and Fitzsimmons (2008:107).

The next section defines some terms used in this study.

1.3 Summary of key terms

Some of the key terms that are used in this study, which are terms discovered as part of the literature review in the body of knowledge of OM, are unpacked below.

1.3.1. Operations management

‘OM is about how organisations create and deliver services and products. OM also involves the management of resources that are transferred into a completed product or a service, which also defines the reason for the existence of the organisation’ (Slack & Brandon-Jones, 2019:29,31).

1.3.2 Customer expectation

A preconditioned set of expectations contribute to the way customers or consumers perceive the service or product. What consumers expect to see is based on their familiarity with the products or service, a previous experience with the product or service, or a preconditioned set of expectations (Schiffman & Kanuk, 2014: 138). It is stated above that the NWU Strategy and Success Model’s statement created a preconditioned expectation of a high standard of operations at the NWU (NWU, 2018; NWU, 2023a)

1.3.3 A services operation

A services operation setting refers to where employees use a specific process wherein proper resources are used and converted into satisfied customers. Services describe an economic activity that adds value as a psychological utility, time, a form, or a place. A service operation is focused on serving a customer, and on achieving customer satisfaction via the service (Pardillo, 2020:2). A services system comprises a front room, where direct contact with customers is possible, and back-room activities, where activities are executed to support the front room services team (Haksever & Render, 2017:9).

1.3.4 Service

It is important to understand that there is an ‘offer activity’ and a ‘receive activity’ in services. Services are offered by the service provider, which could be an organisation or a person. Services are offered to customers, such as students, users, citizens, victims, viewers, guests, or listeners (Johnston *et al*., 2012: 5).

1.3.5 Customer satisfaction

When the customer’s perception of the service that is delivered meets the customer's expectation, it is referred to as customer satisfaction according to Schiffman and Kanuk (2014:10).

1.3.6 Process design

All operations comprise of processes that act as units of a network in which the product is created (Slack & Brandon-Jones, 2019:201). The operations in a service delivery setting are the processes involved in the production of the intangible products that are related to services (Pardillo, 2020:2). As mentioned under point 2.1.10, process design is directly linked to quality, which is the main contributor of customer satisfaction. (Fitzsimmons & Fitzsimmons, 2008: 138).

1.3.7 Quality

'Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skilful execution. It represents the wise choice of many alternatives' William A. Foster (1941, cited by Despande, 2022).

Quality expresses a 'feature or characteristic of a someone or something', and it describes how good or bad something is according to the Cambridge online dictionary (2022). The delivery of quality services causes the customer to assess the quality of the service against his/her expectation.

1.3.8 Quality as an OM strategic decision

Quality refers to the customer-centred notion of aiming to do things right, being consistent, and conforming to customer expectations; it contributes to customer satisfaction and is the most visible part of an operation (Slack & Brandon-Jones, 2019:73). The Total Quality Management (TQM) approach is regularly utilised in OM to ensure that tasks are completed with a drive towards excellence in order to meet customer needs (Heizer *et al*. 2020:252). In TQM, a task that is completed is viewed as being part of a chain of customer/supplier events, where input in one unit was the output of the previous unit. TQM adheres to ISO 9000, which is the international set of standards that regulate quality (CMI, 2015:ch 2 par 1,2).

1.3.9 Service quality

Service quality refers to the outcome when a service is delivered to a customer; it is the measurement of a set of expectations against the actual service experienced by the customer. Service quality is measured during the consummation of the service. An important fact mentioned by Fitzsimmons and Fitzsimmons (2008: 41) is that the quality of a service is measured by the process of the service as well as the outcome of the service. It consists of five elements that are discussed in the SERVQUAL model in Chapter 2. It is at this point that service quality links with process design.

In a service setting, intangible products are created. The characteristics of an intangible product are that it requires a time frame, a form, and a location for the interaction between the customer and the service to take place and that the output must have psychological or economic value (Pardillo, 2020:2). The benefit of quality is that customer satisfaction with service quality creates economic value that leads to customer retention (Schiffman & Kanuk, 2014:11).

1.3.10 The SERVQUAL model for quality

The SERVQUAL model measures the quality of a service against the elements of service quality, which are reliability, responsiveness, assurance, empathy, and tangibles. This model is used to survey customer satisfaction, and it measures gaps in service quality (Amist, 2017:31; Fitzsimmons & Fitzsimmons, 2008: 111).

1.3.11 The House of Quality

The House of Quality (HOQ) is also referred to as Quality Function Deployment (QFD), and it is used to plot customer input when a product is designed. According to Fitzsimmons and Fitzsimmons (2008: 116), building the HOQ helps to introduce customer needs and customer expectations into the process design, which creates an opportunity for identifying where improvements are necessary and possible for each activity involved in the services rendered.

1.4 Problem statement

This section highlights the problem in three dimensions. The first dimension is the expectation, the second is the reality, or the ‘as is’, and the third dimension is a view on the future.

The division under investigation is a support office rendering services to students and other customers of the NWU. The success model statement of the NWU creates an expectation of a high standard of services delivery (NWU, 2018). Therefore, the need arises to measure the services rendered to determine whether this objective was met. This need forms the backdrop of the main problem that is investigated in this study: to determine whether there is a gap between customer expectation and customer satisfaction in the services offered to customers by the HDA office.

There is a specific concern regarding quality output during peak times, which occurs especially toward the end of each year for the HDA office. Peak times create

workload increases that affect quality output according to Lopetegui *et al.* (2008:2). The concern is that the staff who are under strain exhibit a decrease in service quality during peak times. This is investigated as part of the data analysis that is discussed in Chapter 4.

According to Fitzsimmons and Fitzsimmons (2008: 99), 'for services, the process is the product'. One of the tools of Quality is to build a House of Quality (HOQ) to determine where the process could be improved to improve the customer experience, even during periods of constraint. The underpinning assumption that supports this study is based on the statements from Heizer *et al*. (2016:43) and Pardillo, (2019:22-24), which state that OM principles, -theory, -techniques, and -tools which support the OM strategic decisions, will contribute to successful operations. Consequently, this creates successful and profitable organisations.

1.5. Research objectives

The title of this study elucidates the purpose of this study, which is to determine customer expectation against customer experience in the HDA office. The research objectives listed below aim to assist the researcher in keeping the research endeavours aligned with the objectives and the title.

1.5.1 Primary objective

The objectives are divided into primary and secondary objectives. The primary objective of this study is to determine how the expectation of customer service delivery (as stated in the NWU Strategy (NWU, 2018b; NWU, 2023e) compares with actual customer service delivery offered to customers of the HDA office. Using selected OM principles for services settings, could assist in this investigation, wherein the customer expectation and customer satisfaction concerning the day-to-day operations in the HDA office are measured. Implementing OM principles in day-to-day operations should lead to the improved output of customer service delivery levels. The selected OM principles used in this study is quality and process design informed by building an HOQ.

1.5.2 Secondary research objectives

The secondary research objectives of this study are:

i) to understand the essence of services, service quality, and continuous improvement in services through a literature study,

ii) to capture (via an empirical study) 'the voice of the customer' to: (a) measure customer satisfaction against customer expectation regarding the services rendered, and to (b) gather HDA office customer recommendations for improvement,

iii) to find the gap between customer expectation and the services rendered,

iv) to build a HOQ based on the comments included in the surveys (which included customer recommendations), which are regarded as the 'needs of the customer', that can be used to improve the current processes of the HDA office.

v) to use the information gathered from the literature study, the survey findings, and the HOQ to make recommendations for establishing a culture of continuous improvement concerning service excellence at the HDA office.

1.6 The primary and secondary research questions

The primary research question is:

i) Do the current service delivery levels in the HDA office meet the customers' expectations concerning quality and processes?

The secondary questions are:

i) What information is available in selected literature to understand services and to determine the quality of services in a services department?

ii) What is the gap between the services rendered and customer expectation in the HDA office?

iii) What information was gathered from the recommendations to build an HOQ in order to guide process design and service delivery improvement in the HDA office?

iv) How should the information gathered from the literature study, the survey findings, and the HOQ be used to make recommendations for establishing a culture of continuous improvement concerning service excellence in the HDA office?

1.7. The scope of the study - delineation

The scope of this study is the service delivery in the HDA office that mainly functions as a support office in the NWU environment, where mostly intangible products are

produced. In this investigation, only selected OM strategic elements were used. These are supported by principles, -tools, and -techniques discussed in Chapter 2 of this study. The elements in the OM body of knowledge that are relevant to a services department were identified for this study.

1.8 Field of study

The study was conducted within the field of the social as well as management sciences with a focus on business administration. The study was conducted in an administrative department of the NWU, namely the Higher Degree Administration (HDA) office.

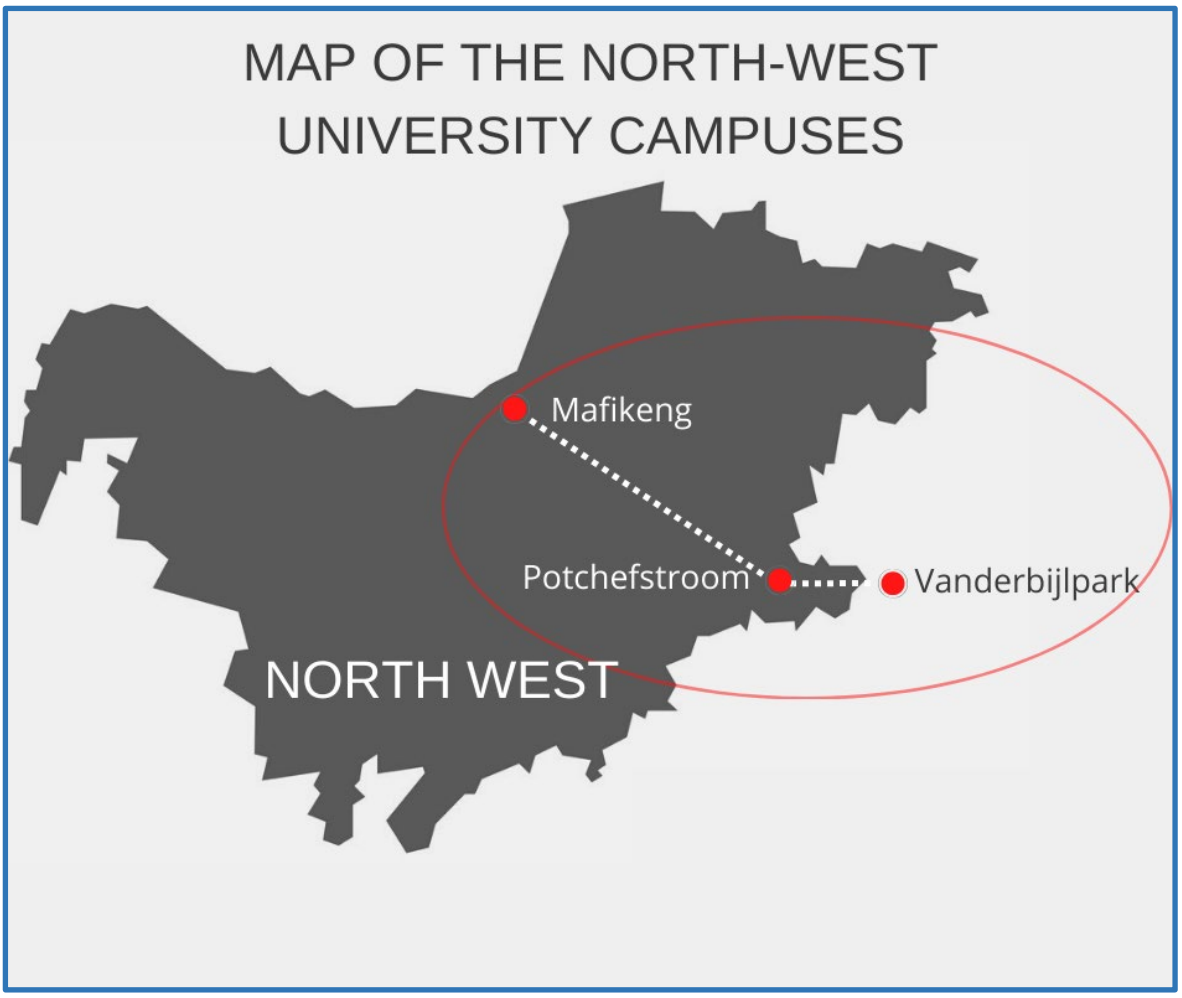
1.9 Sector under investigation

As indicated above, the sector under investigation is the HDA office of the NWU, where the services are directed towards supporting students and other role-players involved in master's and doctoral studies. The HDA office has offices in Vanderbijlpark, Potchefstroom, and Mahikeng (as depicted in Figure 1.1), where all student life cycle steps are supported from on-campus workstations. Service delivery is rendered upon HDA staff's interaction with customers who could be students, support staff, academic staff, or external persons with an interest in the matters regarding master's or doctoral studies.

1.10 Geographical demarcation

The HDA office is centrally managed from Potchefstroom and locally deployed in Mahikeng and Vanderbijlpark. Participants from all three locations contributed to the research project, as depicted below in Figure 1.1.

Figure 1.1 Geographical location of the HDA offices of the NWU



Source: Adapted from Britannica, North-West Province (2021).

1.11 Layout of the study in chapters

The layout of the chapters of the study is:

Chapter 1: Introduction, background, problem statement, and research objectives

Chapter 2: Literature review

Chapter 3: Research method

Chapter 4: Empirical study: Data collection and data analysis

Chapter 5: Conclusion and recommendations

Chapter 2

2. Literature review

2.1 Introduction to the literature review

This section reports on the literature concerning the discipline of OM, but also zooms in on services and services management. The literature review was, first, conducted to collect the relevant information on the topic (Ratten, 2023:16); second, it was conducted to achieve the secondary research objective mentioned in the previous chapter under point 1.5.2: 'to understand the essence of services, service quality, and continuous improvement in services through a literature study.'

For the literature review of this study, the researcher selected literature that focuses on the discipline of OM. From the literature study, it was clear that OM contains the necessary theories and principles needed for this study. The body of knowledge of OM comprises operational strategic decisions guided by the theory, principles, and tools, underpinned the researcher's understanding of OM as a discipline as well as how it relates to services and services management (Heizer *et al*., 2020:40).

Mainly secondary resources were used to complete this section of the study (Saunders *et al*., 2019: 116). The secondary resources that were consulted comprise literature containing information on the topic under investigation. These resources were accessed by using search engines (such as Google, Google Scholar, and EbscoHost), electronic readers, and published eBooks on various platforms (such as Perlego). These secondary resources contributed to the researcher gaining insight into the information already published on the topic.

In addition, the study of these resources assisted the researcher in focusing on the title of the study and aided in aligning the information collected with the secondary objective mentioned above. The next section starts with describing the underpinning theory of this study, which is operations management.

2.2 Operations management: theory and principles

OM refers to the management of all activities that could be described as the core activities that produce a product or deliver services to customers. All operations involve the management of stock, assets, personnel, and capital (Barnes, 2018:18).

OM as a discipline is guided by ten principles (also referred to as strategic decisions) that could be regarded as the pillars for understanding OM tools and elements (Heizer *et al*., 2020:40). The point of departure for this section is that the application of these tools ensures successful operations.

All the operational elements are based on the application of specific tools, timelines, information, techniques, models, and theories that would support effective strategic decisions. According to Heizer *et al*. (2020:40), these principles or pillars are:

1) the product (goods and services),
2) *ensuring quality services or products,*
3) *effective processes* and capacity decisions,
4) understanding the importance of the location of your business,
5) optimisation of the layout of the operation,
6) managing staff and their tasks *(job and process design),*
7) managing the supply chain that supports the business,
8) effective management of an inventory against a budget
9) the effective management of timeframes and time horizons for projects and products,
10) the importance of strategic decisions regarding the maintenance of the facility and equipment.

While the researcher acknowledges that all the strategic decisions form the general construct that supports the discipline and theories of OM, only two have been selected for this study. The focus on customer experience and customer satisfaction guided the researcher to investigate quality and process design.

The first aim of this chapter is to create an understanding of the two elements; the second aim is to investigate how the two elements/strategic decisions could be applied to improve output in a service setting, specifically the HDA office. The point of departure is however to first define and understand OM, services, and services management.

2.2.1 What is Operations Management?

Barnes (2018:19) describes OM as the 'management of the resources and procedures required by an organisation to produce goods or services for customers. According to Barnes (2018:19), there are three types of operations:

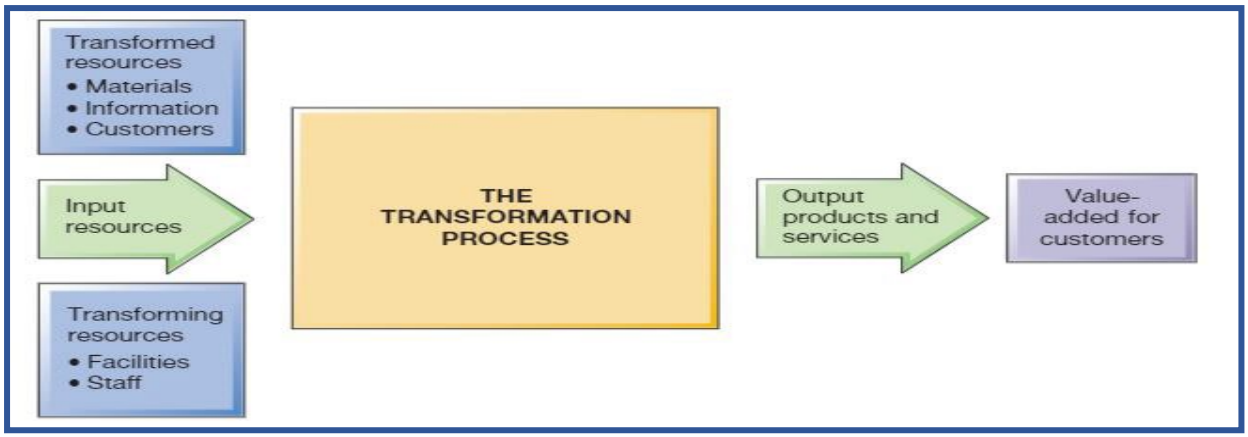
- material processing operations: a product is created or transported from one stage/place to another,
- information processing operations: data or information is stored, created, or processed, such as in a university where research takes place. Mostly supported by computers,
- customer processing operations: the creation of a service where the customer benefits from the services in some intangible way and is transformed either by means of education, treatment, or by entertainment.

Heizer *et al.* (2016: 36) state that operations produce tangible objects by defining OM as 'a set of activities that create value in the form of *goods* and *services* by transforming inputs into outputs [italics added]'. Another definition by Pardillo (2019:2) confirms the same sentiment: 'operations of an organisation may comprise the production of both *goods* and *services* [italics added]'. So, whether a physical or intangible product is created, the process and discipline are referred to as 'operations management' (Heizer *et al*., 2016:36).

Heizer *et al*., (2020: 36) describe OM as a discipline that applies to both services and factories; they also argue that OM techniques can be applied in any business or operation for it to become truly effective. Figure 2.1 depicts OM via a process flow diagram, which is for services and for a product. Heizer *et al*. (2020:36) and Pardillo (2019:2) support that operations do not only entail the production of a visible product.

Therefore, based on the statements above, the researcher deducts that a service could be regarded as a product of an operation. Universities, for example, offer a service to their customers in the form of an opportunity to study.

Figure 2.1 The diagram of operations management



Source: Slack & Brandon-Jones, 2019:39.

Thus, the researcher utilised this viewpoint (that a service could be regarded as a product of an operation) in this study of a services department; thus, the body of knowledge for OM includes services, and it is relevant as the undergirding discipline for this study. The next section aims to create an understanding of services, service delivery, and services management.

2.2.2 What are services?

Services as a concept within OM is a core element in this study. Jordaan and Prinsloo (2004:8) state that operations link to services in the form of information-based services and in customer processing operations. Services are regarded as deeds done or actions performed to satisfy a customer's demand or need. Pardillo (2019:4) supports this viewpoint by stating that services are part of operations 'and forms a broader perspective of the management of various processes and systems that create goods and services from the operations management of an organisation.'

Jordaan and Prinsloo (2004: 8) define services as: '…an act or performance that one party can offer another that is essentially intangible and does not result in the ownership of anything. Its production may or not be tied to a physical product. Services could also be described as value adding to the customer through intangible products through acts, deeds, or performances.'

Haksever and Render (2017:8) add to the description of services by stating that services are also expressed in a time frame, at a place, on a form, or as an intellectual or psychological event that is consumed at the time of delivery or not.

long thereafter. Services also require the availability of time and sufficient resources but a study on this that are outside of the scope of this study (Heizer *et al*., 2020:46).

2.2.2.1 Types of services

According to Johnston *et al*., (2012:5), there are a variety of services that are offered by different types of organisations, including 'business-to-consumer services, business-to-business services, internal services, public services, not-for-profit services, and voluntary services. Due to the advancement of technology, electronic types of services also exist, such as self-help counters and WEB services. Other types of services are offered outside of organisations and business settings, such as friendship, support groups, caregiver services, catering services, and private transport services. The services under investigation in this study fall under the business-to-customer type of services, which are supported by technology that provides self-help counters and online products.

To improve the customer experience in the age of digital transformation, tools have been developed to reduce the need for face-to-face interaction between the customer and the service provider (Lee-Whiting, 2023). The customer receives an automated service and is less involved in process design activities; this leads to the customisation of each service event. The automation of services aims to provide fixed service options, to develop most of the product before customisation is applied, or to provide a modularised product, such as Web registrations. An example of automated services at the NWU is the self-registration option offered to students and the NWU DIY platform (NWU, 2023); these services require limited customer interaction with the product of the business (Heizer *et al*., 2016:213).

2.2.2.2 The role of the customer in services

In view of the business-to-customer type of services that are investigated in this study, it is important to include the *customer's perspective* on services, as mentioned by Johnston *et al*. (2012:7) An operation or a business provides a service, and the customer receives the service. The customer participates in the service delivery process. From the customer's perspective, the service is received, accompanied by an experience, a value, and benefits, and emotions are also attached to the service experience. Fitzsimmons and Fitzsimmons (2008:18) mention that the customer's participation in services is the defining difference between an operation where a product is created and an operation where a service

is rendered. Heizer *et al*., (2016:211) support the notion of Johnston *et al.* (2012:7) that gives attention to the role of the customer in services. These authors agree with Fitzsimmons and Fitzsimmons (2008:18), who mention that customer participation is the essence of services. More detail on customer participation is discussed in point 2.4.2.6.

Heizer *et al.* (2016:211) provide the conclusion on the term services when they describe services as the creation of an intangible product. Services are then also underpinned by a process or procedure, which is executed by a staff member who would need training and the skill to perform the service. In services, the end goal is always to improve the customer experience by providing effective and efficient services (Heizer *et al*., 2016: 212).

In essence, the researcher investigated services from different perspectives. Service delivery comprises services that are delivered by one party and received by another. It is important to understand that there is an 'offer activity' and a 'receive activity' in services. Services are offered by the service provider, which could be an organisation or a person. Services are offered to customers, students, users, citizens, victims, viewers, guests, and listeners. (Johnston *et al*., 2012: 5)

2.2.3 What is services management?

Services management is a task that is assigned to the responsible person, such as the manager of a services division. A service environment in a professional service (such as the NWU services departments) consists of a high labour component, a high level of interaction with the customer, and the customisation of the service. This setup provides specific challenges for the services manager, as mentioned below in Table 2.1.

Table 2.1 Challenges of the services manager of professional services

Challenges for high labour intensity	Challenges for high interaction/customisation
Hiring staff that can perform the work	Costing and keeping expenses low
Training of staff to perform tasks	Maintaining quality of service delivery
Methods to control completed tasks	Reacting to customer feedback
Methods to develop staff to improve	Allowing customers' intervention in processes
Staff wellness measures and efforts	Managing the advancement of staff
Scheduling of workforces	Managing according to the hierarchy
Starting up of new units	Gaining employee loyalty
Managing the growth of the organisation	Retaining customer loyalty with services
Controlling work in remote areas	

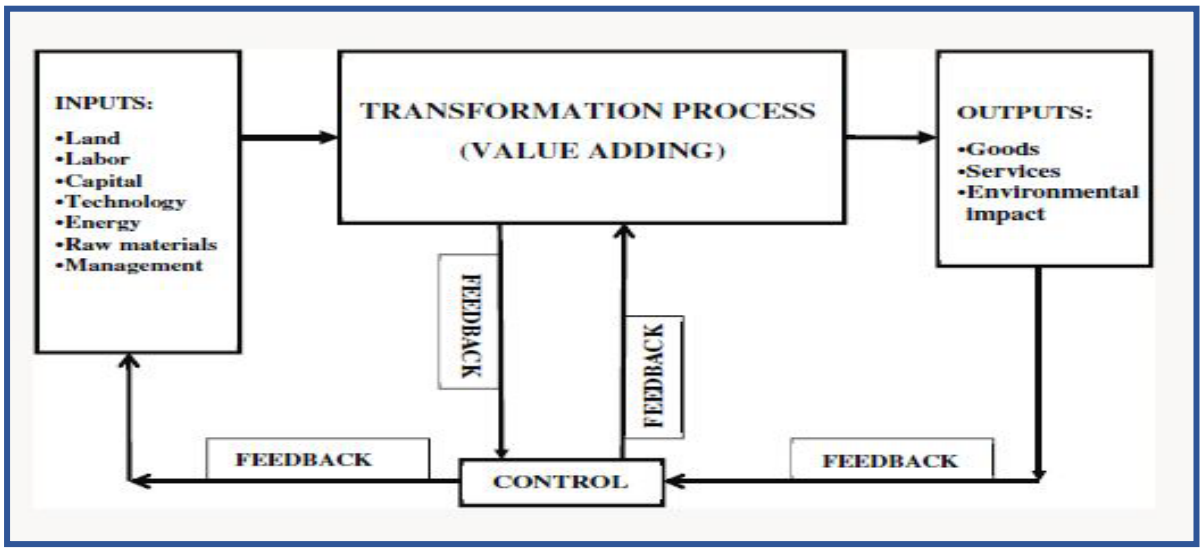
Source: Fitzsimmons & Fitzsimmons, 2008:25.

Services management comprises decisions concerning the type of services that the organisation will offer, which relationship with customers to maintain, and the extent to which services will be automated or customised. Fitzsimmons and Fitzsimmons (2008:28) expand on this topic by addressing demand and the impact it has on services and planning, peak-time planning, and managing capacity during peak times.

2.3 Combining operations management and services management

In general, the study of OM describes the production of tangible goods, but as mentioned above, OM also includes services (Heizer *et al.*, 2016: 46; Barnes, 20018:19). There are similarities between the operations required to produce tangible products and the operations required to produce intangible services. The similarities that have been identified are the product, a process design, and the need to deliver products and services within predetermined quality standards, all of which require staffing, the training of staff, a facility where operations take place, a customer demand or request expressed as a need, or a customer expectation that must be met (Heizer *et al.*, 2016:50).

Figure 2.2 Production and services system diagram



Source: Haksever & Render, 2017:9

According to Pardillo, (2019:4), the steps to produce a service or a product are (1) a variety of *inputs*, such as labour, capital, and information, (2) that is done in an organised order employing a *transformation process* (storing, fixing), (3) to get *output* in the form of an item (goods) the g or a service.

Figure 2.2 depicts the relationship between input and output that must be supported by adding feedback and control into the production and services system (Pardillo, 2019:6). The diagram introduces two new steps that are relevant for this study, namely monitoring and evaluation, which are the two core elements of the continuous improvement tool (which falls under OM's quality element). (Pardillo, 2019:24). This diagram confirms the need to meet customer expectation and demand, which was also emphasised as important for a services delivery operation by Jordaan and Prinsloo (2004:4).

2.4 Measuring services

This study identified three ways in which services can be measured (Pardillo, 2020:5; Jordaan & Prinsloo, 2004:12; Ramya *et al*., 2019:38). They are:

1) *Contact in delivery of services*: the degree to which a customer uses direct-contact services and is present in the building, leading to face-to-face services in walk-in customer settings, versus online or remote contact. Jordaan and Prinsloo (2004:12) propose that where customers visit premises, an effort should be made to make their visit a pleasant experience.

Remote settings allow the employer to focus on an effective setting for the employees that is supported by effective process design.

2) *Productivity:* measurement of productivity, referring to types of activities and their time frames. Time and motion studies could be used as a tool to measure output; it is also used to identify where improvements are needed concerning the completion of tasks that are directed by a process (Pardillo, 2020:5). The measurement of productivity is outside of the scope of this study.
3) *Services quality:* service quality is a combination of the two concepts, namely services and quality. Services are defined as 'any activity or benefit that one party can offer to another that is essentially intangible and does not result in the ownership of anything'; quality is defined as 'the ability of a product or service to meet customer needs' (Heizer *et al*., 2020: 249). Service quality refers 'to the ability of the service provider to satisfy the customer in an efficient manner through which he can better the performance of the business' (Ramya et al., 2019:38).

Ramya *et al*. (2019:38) and Heizer *et al*. (2020:249) confirm the existence of the golden thread that runs through this chapter, namely that quality supported by process design is the primary strategic tool used to ensure operational efficiency and the improved performance of a business as well as for the organisation to establish a competitive edge in the market.

2.5 Characteristics of services

Characteristics of services describe a distinctive element. According to Haksever and Render (2017:9), researchers identified six types of characteristics of services, which are discussed below, namely intangibility, perishability, inseparability, variability, lack of ownership, and participation of the customer.

2.5.1 Intangibility

There are no physical products in services, but there is an interaction with a customer in which an intangible experience is created for the customer. In the HDA environment, services are performed using forms that customers need to complete, which are presented to them via a computer. Both the form and the computer represent physical objects. Even though the services rendered to the customers

require a tangible form, the customers' experience of the services is intangible. Intangibility encapsulates the experience that could be described as satisfaction or dissatisfaction with the service. The experience of a service does not translate into a physical shape, such as the form which is related to the service (Haksever & Render, 2017:9); therefore, services can be associated with intangibility.

2.5.2 Perishability

Some services are perishable to the degree that they are consumed when delivered, for example when a student phones in to ask for an academic record. Once the service has been rendered, the activity has come to an end. The activity is regarded as completed, and therefore perishable. There are intangible services that are not perishable upon consumption, such as studying for a degree. It is not perishable as its consumption will happen over a longer term. (Haksever & Render, 2017:9). Both perishable and long-term services are rendered in the HDA office. An example of a perishable service includes a student just asking for needed information; an example of services that have a long-term effect on the customer is sending students an invitation to a graduation ceremony, which has a distinct impact on the career and promotion options for the customer.

2.5.3 Inseparability

The consumption of a service and the provision of a service go hand in hand, for example, advice given to a student on studies is consumed as it is given. The two activities are inseparable. The second aspect of inseparability is service delivery, which refers to the service provider's relationship with the customer. The role of the customer in the service is of vital importance in this attribute of services too. If the customer does not request the service, the service is not rendered. Thus, the customer requests the delivery of the service, and then the service is rendered. According to Haksever and Render (2017:9), the inseparable elements of a service are:

1) consumption of a service which could be to an individual or a group,
2) the request for the service and the delivery of the service.

2.5.4 Variability

Variability is a two-way concept; it refers to the variability in the services offered and the variability in the experience of the services received. In services, variability also

refers to the staff member's variability in rendering the same service to several customers. Lastly, it refers to the variety of responses to the same service that customers may give. Variability in a service is the most difficult to measure, and it is unpredictable as well (Haksever & Render, 2017:9). According to Fitzsimmons and Fitzsimmons (2016:258), there are five categories of variability, which are provided in Table 2.2.

Table 2.2 Table of categories of variability and examples

Type category of variability	Example
Arrival variability	The customers demanding the service do not ask for it in predictable time frames or numbers.
Capability variability	The level of knowledge, physical ability, and skills of employees and customers during the interaction varies.
Request variability	Refers to customers' unique demands that also require customisation per request (see point 2.2.3).
Effort variability	The level of commitment in the action required by the customer and the service. This is highly variable during long ques and extended peak-times
Subjective preference variability	Personal preference of how a customer or the service person wants to be treated, regardless of the procedure in some cases.

Source: Fitszimmons & Fitszimmons, 2016:258.

Haksever and Render (2017:9) elaborate on variability, specifically for person-to-person or face-to-face scenarios. They state that person-to-person services are the most likely scenarios in which variability of a service develops.

A service rendered to a customer may vary from one customer to the other because:

- it could be a different request to the previous request,
- it could be the same request to the same staff member who is tired at the end of the day,
- it could be the same request to a different staff member who has a different approach to the same process, different levels of expertise, or a different personality,
- it could be the fact that every customer also has different attitudes, levels of expertise, and different personalities, and may respond differently to the same service rendered by the same staff member.

Based on the definition and examples of variability mentioned above, it is possible to measure the quality of services, variability of services would affect customer experience the most. Variability is the reason for a difference in customer experience of a service where staff implements the same procedures per customer. According to Heksever and Render (2017:9), variability in services is the greatest challenge to maintain a standardised quality of a service. The secondary data will be investigated to see whether an element of variability, due to peak times, could be identified in the customers' feedback.

2.5.5 Lack of ownership

When a customer purchases a physical product, ownership is established upon the purchase. A service does not always entail ownership of the product. An example is: that a student attending a class does not own the seat that they use to receive education (Haksever & Render, 2017:9).

2.5.6 Participation of the customer

In a factory setting where a product is created, the focus is on the customer and what the customer's needs are. Even though the customer does not actively participate in the creation of the product, the need of the customer directs the operation and the creation of the product. **(**Fitszimmons & Fitszimmons, 2016:268). Johnston, *et al*. (2012:8) emphasise the perspective of the customer as the main

role player in a service interaction and that the customer contributes to the process design which is a topic revisited in Chapter 5 of this study.

2.6 Outcomes of services

There are four elements in a service interaction (Heksever & Render, 2017:9):

1) the customer,
2) the service provider,
3) the delivery system and the
4) physical evidence of the service.

Johnston *et al*. (2012:8) believe that the customer has the first and the last role in the interaction, with the customer who will give an evaluation of the interaction, referred to as the moment of truth (see point 2.4.5), also referred to as 'judgements made by the customer' by Johnston *et al*. (2012:8). Mano and Olivier (2015:451) confirm the perspective of Jordaan and Prinsloo (2004:4) and mention that services are evaluated on a cognitive level as well as an emotional level.

According to Jordaan and Prinsloo (2004:12), the outcomes of services are appraised according to the customer's perspective. In addition, Johnston *et al*. (2012:8) identify five basic outcomes of services that are linked to the customer's experience of a service, namely:

- products that are created for the customer,
- benefits that are provided or experienced by the customer,
- emotions that are felt by the customer when interacting with the services provider,
- judgements made by the customer about the service delivery,
- intentions of the service provider and the customer during the interaction.

2.7 The role of the customer in service operations

Customers are at the receiving end of all services that are delivered, and as mentioned above, customers 'consume' the product upon delivery. According to Jordaan and Prinsloo (2004:4), it is important to acknowledge that customers have

expectations; these expectations lead to an unconscious evaluation of the effort of the service providers.

There are four process roles that customers can play in a service, according to Heksever and Render (2017:9). They are:

1) People processing (people-centred) services, which refer to services that cannot be performed without the customer present. Examples are tailoring or surgery.
2) Possession processing, which refers to the object that is necessary to render the service. Examples are car repair services or garden services.
3) Mental stimulus processing, which are services that are aimed at the customer's cognitive participation. Examples are a television broadcast or an online lecture.
4) Information processing, which refers to intangible activities directed at the intangible needs of a customer. Examples are an online bank transaction or an email interaction with the services provider.

The last two roles describe the interaction customers have with the services department under investigation in this study. As a baseline, a customer expects an acceptable value for their expenses. In the case of the NWU, the expectation for a high standard of services to customers is set by the NWU Success Model's (NWU, 2018) statement concerning 'a high standard'.

The basic three overall principles in service operations are (Pardillo, 2019:22):

- Services should be delivered efficiently and cost-effectively (which relates to the benefits of OM mentioned above).
- Services should be rendered within the scope of standards set for the organisation (which implies the application of quality tools and techniques).
- Technology plays a main role in maintaining an acceptable level of customer satisfaction.

2.7.1 The moment of truth

The moment of truth could best be described as the customer's reaction when the service is consumed. The moment of truth is defined as 'the moment that exemplifies, enhances, or distracts from the customer's expectation.' Heizer *et al*.

(2020:213) continue to state that the operations manager's (or the services manager's) task is to capture these moments of truth between the customer and the services provider and to use it to design processes that 'meet or exceed' customer expectations. Johnston, *et al*. (2012:7) mention that the individuality of customers influences their personal evaluation of the services, which leads to each having a different experience.

2.8 The explanation of the selected OM elements used for this study.

OM provides the underpinning theory for this study. Two of the elements/principles used in OM have been identified as the elements that are the most relevant in a services setting, which are:

1) quality,

2) process design.

The next section elaborates on the quality element of OM.

2.8.1 Quality: The importance of managing service levels

Quality is defined as: 'the operations manager's objective to build a total quality management system that identifies and satisfies customer needs' (Heizer *et al*., 2020:249).

The *International Quality Standard List* includes a code for quality; this code is ISO 9000, which advocates that quality in an organisation is upheld by specific management principles for quality. Heizer *et al*. (2020:250) name the following principles:

1) leadership that is given by top management,
2) customer satisfaction,
3) continuous improvement,
4) involvement of people,
5) process analysis,
6) the use of data-driven decision-making,
7) a systems approach to management,
8) mutually beneficial supplier relationships.

The ISO principles that overlap with OM elements that are used in this study is customer satisfaction, continuous improvement, involvement of people (customers), and process analysis.

The focus on services and quality as part of the study of OM took momentum in the second half of the 20th century. Since then, all services-rendering organisations and businesses have learned to focus on quality in their day-to-day operations. Pardillo, (2019:6) affirms this fact and states that there is an increased importance of quality in services, which can be rephrased as follows: doing things right the first time the service is rendered and consumed by the customer. Pardillo, who writes about OM principles in services, supports the ISO principle, which is the customer's satisfaction with a service. According to him, it has become an important aspect in OM. The ability to render quality services is an essential part of the survival of an organisation, and both quality and customer satisfaction should underpin process design, service requirements, and document specifications (Pardillo, 2019:12).

Quality output in an organisation starts with an effort to create a culture that 'fosters' quality (Heizer *et al.*,2016:248). The second element of OM (process design) that is used in the study relates to the act of fostering a 'quality culture' in an organisation. In addition, Heizer *et al.* (2016:246) ascribes four other important aspects that drive quality in services; these are total quality management, continuous improvement, Six Sigma, and employee empowerment. Three of these are described in more detail below.

2.8.1.1 Total Quality Management

The Total Quality Management approach was initiated in the United States because of competition that developed for the US in the Japanese market, according to Heksever and Render (2017:22). The underpinning philosophy for this approach to quality is that one must begin with changing the management philosophy of an organisation. There was a strong customer-centric approach to business operations. The customers' needs were not only to be met but also exceeded.

The Total Quality Management (TQM) approach consists of two approaches.). It affirms that an organisation could set the standard with its mission statements. In the case of the NWU (2018), where it sets the expectation of good services as a point of departure. The two approaches are: continuous improvement, employee empowerment,

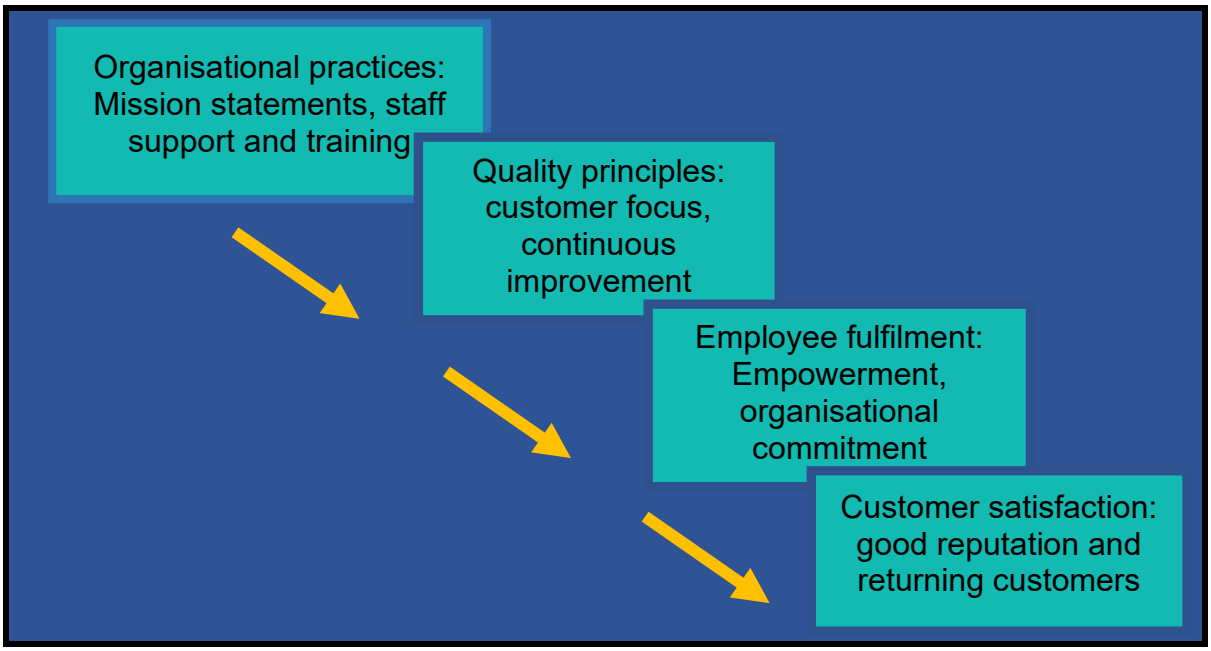
2.8.1.2 Continuous improvement

The underpinning philosophy of continuous improvement is that perfection ought to be pursued in every effort, even if it is not achieved, and that every aspect of an operation could be improved. The tasks for continuous improvement fall to the operations manager, and it consists of four basic activities which are:

- plan,
- do,
- check,
- act.

This cycle of managerial activities confirms that improvement is a never-ending effort (Heizer *et al*., 2020:252).

Figure 2.3: Four steps of TQM



Source: Heizer *et al*., 2020: 249.

Continuous improvement is also the focus of the services life cycle approach. According to the statements of Pardillo (2019:24), the important factors mentioned below affirm that quality and continuous improvement are prominent in services. They are (Pardillo, 2019:24):

1) cost and quality are very important in the duties that form part of service creation,

2) the objectives of the organisation should be met,
3) all operations should be completed within the budget limit,
4) the expected return on investment should not stop at the initiation of the organisation and the setting up of required processes. Investment should continue to support ongoing management, which would require problem-solving and fixing of design flaws.

2.8.1.3 Employee empowerment

Employee empowerment refers to a company's staff being directly involved in every step of the process. Facilitating the process correctly is necessary to achieve quality. Employee empowerment is a bottom-up approach to problems and acknowledges that staff who deal with a system daily understand it best. They usually also have solutions for a system's shortcomings. Employee empowerment is built on five pillars, which are (Heizer *et al*., 2020:254):

1) networks of communication among employees,
2) the open and supportive attitudes of supervisors,
3) that employees involved in production bear responsibility for quality and output,
4) building organisations where a high morale is fostered as a culture,
5) creating quality support systems such as quality circles and working teams.

Employee empowerment forms part of Deming's 14 points of quality improvement. According to Heizer *et al.* (2016:252), actions that affirm employee empowerment are:

- start training employees,
- emphasise leadership,
- provide support,
- provide help and improve daily output,
- remove obstacles for employees to feel proud of their completed tasks,
- create a programme of self-improvement,
- obtain the buy-in to transform all tasks towards quality.

2.9 SERVQUAL and the dimensions of service quality

A focus of the study for three researchers (A. Parasuraman, V. Zeithami and L.L. Berry) is measuring service quality. These researchers created a model in 1988 that is known today as the SERVQUAL model. They name five important elements that enable the monitoring of services that are delivered to customers against quality and the expectation of the customer, as depicted in the diagram below (Cuofano, 2023). According to Amist (2017:31), the elements and their definitions are responsiveness, assurance, tangibles, empathy, and reliability, which are discussed below:

2.9.1 Responsiveness

Responsiveness refers to the willingness of staff members to assist customers and to provide prompt service. It entails an acceptable turnaround time to customer requests.

2.9.2 Assurance

Assurance is related to the customer's experience of the skill and credibility of staff. This dimension depends on the employees of the firm and is fostered by their ability to produce trust and credibility in the minds of the consumer. It requires that staff possess proper knowledge and dedication, and that proper training is provided by the organisation.

2.9.3 Tangibles

Tangibles are related to the customer's experience of the physical appearance of the facilities, equipment, the physical appearance of the staff, as well as the staff's communication and style of the communication material.

2.9.4 Empathy

Empathy refers to the customer's experience of care, individual attention, and effort by the services department during the interaction when services were rendered.

2.9.5 Reliability

Reliability refers to the dependability of the staff as pertaining to service delivery, whether the organisation is able to fulfil the promises it makes, and the accuracy and aptness of the service delivery.

The three aforementioned researchers (cited by Cuofano, 2023), and Fitszimmons and Fitszimmons (2016:258), developed a services quality equation: SQ = P − E. It states that service quality (SQ) is equal to the customer's perception (P) and experience of the service delivery against the expectation of what the services should have been (E). This equation links with the study mentioned in the

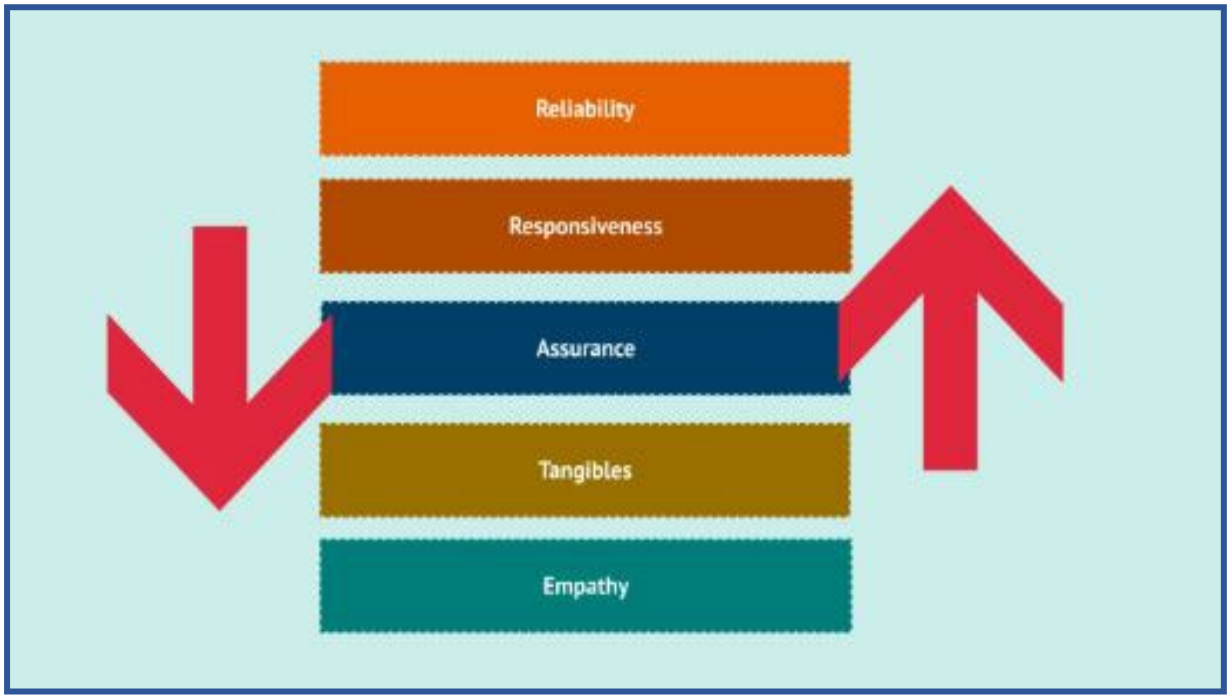


Figure 2.4 The elements of the SERVQUAL model

Source: Cuofano, 2023.

Introduction, where it is stated that the NWU claims that it aims to deliver a high standard of services (NWU, 2018). This study measured whether the HDA office was able to meet this expectation. The descriptions used to describe the dimension of the SERVQUAL model assisted with the interpretation of the open-ended questions.

The SERVQUAL model not only captures the positive attributes of the service but also the gaps in the services. These gaps are described in the table below:

Table 2.2 The SERVQUAL gaps

Nr	Name of gap	Description of gap
1	The management perception gap	The difference between what customers really want and what management thinks their expectations are, which points to not understanding the market.
2	The quality specification gap	The difference between management's perception of what customers expect against the details particulars of service delivery in terms of service design and performance standards.
3	The service delivery gap	The difference between the standard of services that management requires and what is really offered by front-line staff.
4	The market communication gap	The difference between the customer experience and the promises that formed customer expectations.
5	Perceived services quality gap	The overall difference between the expected service and the experience of the service, which is a culmination of the first four SERVQUAL gaps.

Source: Cuofano, 2023.

Chapter 4 also investigates whether the gaps in the services could be identified from the data collected in the surveys. The next section describes the other OM element in services, which is process design.

2.10 Process and process design

An understanding of customer needs ought to inform process designs. Heizer *et al.* (2020:212) state that customer interaction is a vital part of a service. According to Slack and Brandon-Jones (2019:201), a process is an 'arrangement of resources and activities that transform inputs into outputs to satisfy customer needs. The creation of a product can be divided into a network of smaller units or building blocks.

A design represents the conceptual phase of a product. In process design, the effectiveness of a unit determines the success of the complete network of process chains. Process design in a service setting or the manufacturing of a product both depends on the effectiveness of the design and is therefore important for this study; it is used to identify areas of improvement and to determine areas of risk where

constraints may develop in the process flow (Slack & Brandon-Jones, 2019:202). The purpose of process design, according to Slack and Brandon-Jones (2019:204), is to ensure that a process can reach the objective it was designed for.

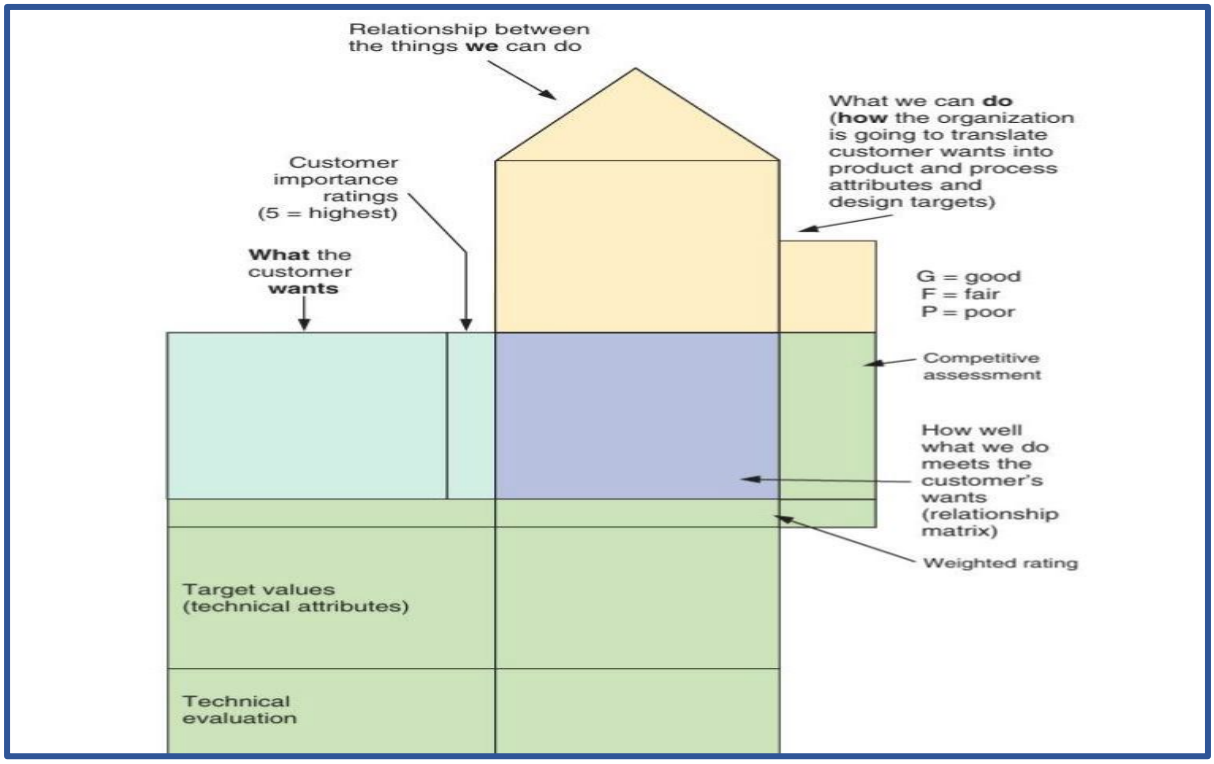
A HOQ is used to improve process design. Data was collected in the surveys on recommendations made by customers for improving the HDA office's services. The customer input collected from the surveys will be introduced in the HOQ (*See*: Chapter 5.

2.10.1 Understanding the House of Quality (HOQ) in quality and process design

A House of Quality (HOQ) refers to a process called Quality Function Development (QFD) and was developed in Toyota factories. The point of departure for the HOQ is that products (or services) should be designed to reflect customer needs, desires, and expectations. According to Fitzsimmons and Fitzsimmons (2008:116), 'the house of quality provides a framework for translating customer satisfaction into identifiable and measurable conformance specifications for product or service design'. The HOQ is built utilising seven steps (Heizer *et al*., 2020:200). They are:

1) identify what the customer wants,
2) identify how the service will meet customer's criteria (features and attributes of the service),
3) connect point 1 and point 3; thus, how will the service need to be executed to provide the customer with what they want,
4) establish relationships between the objectives and what is requested by customers,
5) develop importance ratings for each customer's needs,
6) evaluate the competition product/service,
7) identify the highest scores, which determine what is to be done, how it should be done, and whether it will provide a competitive advantage.

Figure 2.5 A House of Quality (HQF) or Quality Function Deployment (QFD)



Source: Heizer *et al.*, 2020:200

2.11 Reaching service excellence in services.

Effective operations are of paramount importance for the NWU to meet their goals and to have a competitive advantage over its peers, as stated in the *NWU Strategy Plan* as well as in the NWU Annual Performance Plan (NWU, 2020; NWU 2023a). According to Fitzsimmons and Fitzsimmons (2008:107), service quality should be of such a high standard that one should be able to offer a services guarantee, where customer dissatisfaction leads to refunding or some form of restoration to a customer. The above-mentioned researchers are of the opinion that service quality is not enough. The true competitive advantage is to provide *service excellence*. Providing customers with "superior quality" in their interactions with HDA should be the end goal so that customer satisfaction is reached.

2.12 Chapter conclusion

For this study where quality and process design are proposed, an investigation included tools and elements that support the use of quality and process design in organisations. The aim of this study is to find if there is a gap between customer expectation and customer experience. First, the finding of the literature review

indicates that there is a link between customer expectations and customer experience. This finding supports the secondary research objective, which is: to understand the essence of services, service quality, and continuous improvement in services through a literature study.

Second, there is a link between the quality of a service and customer experience that was tested with surveys completed by customers of the office in question. The findings of the literature review underpin the empirical study, where customer experience of the operations of the HDA office was investigated. The investigation was conducted according to the research steps described in Chapter 3; the empirical study is described in Chapter 4. Chapter 5 focuses on the link between quality, improving operations, and how to reach optimal service levels.

Chapter 3

3. Research method

3.1 Introduction

The format of this research project is a mini-dissertation. The purpose of Chapter 3 is to explicate the scientific research process used for this mini-dissertation in logical steps. This chapter describes the research methodology that was applied in the research process. The research design guided the approach to data processing, which included the use of available secondary data. The analysis of the data and findings are described in Chapter 4.

Five basic steps were used in this research process: '1) determine the topic, 2) then set up the research objectives, 3) choose a suitable research method, 4) analyse the data, and 5) write up the report' (Gerber, 2023).

The origin of the research conducted for this study was the quality enhancement project of the NWU done in 2018 (NWU, 2023c). The HDA office formed part of this project in June 2018. As part of this project, all departments of the NWU were required to compile quality manuals for their divisions according to guidelines. The Quality Policy of the NWU (NWU, 2023c), approved in 2021, states that:

> 4.1 it is the policy of the NWU that the management of the university must promote *ongoing quality enhancement* and the fostering of a culture of continuous improvement.
>
> 4.2 '*self-driven quality assurance*…must be adopted as core values for the performance of all academic and support staff service…functions of the university.
>
> 4.4 informed by enforceable '*efficient and functional rules, processes* and procedures' there should be a specific focus on the *monitoring and evaluation of the quality* assurance actions within all functional units of the NWU.

All the points highlighted above relate to quality and the concept of quality assurance (NWU, 2023c). The aim of the Quality Manual for each division is to reach self-driven quality assurance, as explained above. Because customer satisfaction is a good indicator of quality, there is a need to ascertain whether HDA

meets this requirement (Heizer *et al*., 2020:248), as well as the 'high standard of operations' promised in the published documents of the NWU (NWU, 2018b). The next section describes the research design of this study.

3.2 Research design

The research design informs the strategy for the research endeavour and for answering the research questions (Bhandari, 2023; McCombes, 2021.) The layout for this study, as represented in the chapter structure, comprises the research objective and questions, the literature study, the empirical study, the data analysis chapter, and the recommendations and conclusions. Each chapter addresses one research objective/question.

The literature review surveys existing literature to determine the main ideas on services, quality, and process design that are relevant to this study (Brayman *et al*., 2014: Ch. 4 par 2). The body of knowledge that was investigated for this literature review was secondary resources on OM with a focus on services (Saunders *et al*., 2019: 116). The literature was consulted via search engines, such as Google, Google Scholar, eBooks provided by the NWU library, electronic readers and subscription readers, such as Perlego. The research objective guided the researcher in the selection of the literature for study in this investigation.

A qualitative research design is implemented for the empirical section of this study to test data against theories (Ratten, 2023:12). It consists of the data collected from the surveys, which are presented as secondary data for the purposes of this study. The data was readily available to use. The research made use of surveys with open-ended questions, and a qualitative research design was used to analyse and investigate the content provided by participants. The survey was voluntarily completed by customers after an interaction with an HDA staff member (Lopetegui *et al*., 2014:1).

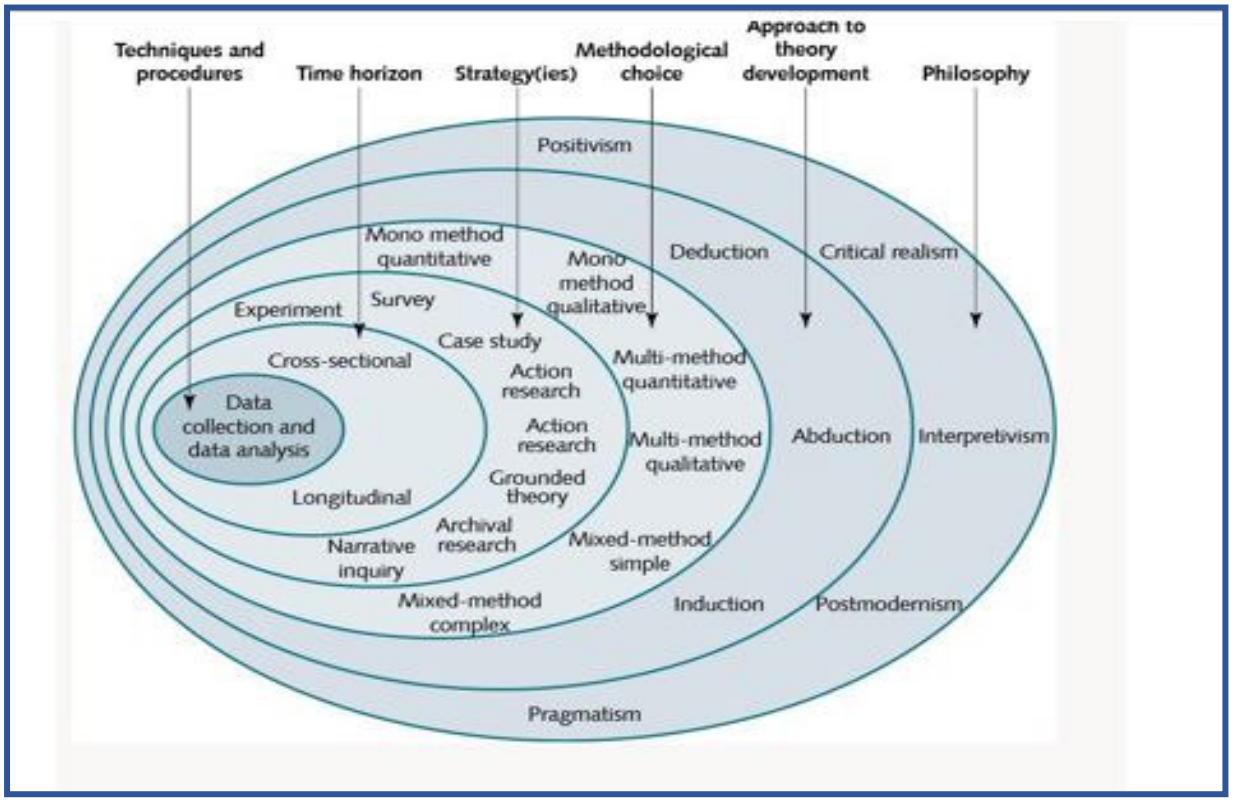
The data analysis themes were derived from the theoretic elements discovered during the literature review. The data that was collected was analysed against the elements of the SERVQUAL model discussed in Chapter 2 (See: point 2.9) (Joubert, 2021). The Research Onion developed by Saunders and Lewis underpins the research method and provides logical steps for unpacking the research activities conducted for this study.

3.3 Research method

Research methodology refers to the method that the researcher followed in conducting research for this study. Research methodology also guided the researcher in implementing a scientific approach to the study, so that the findings and recommendations may add value to the quality enhancement efforts mentioned above.

According to Saunders and Lewis (2019:130), the Research Onion approach is suitable for research in the field of business studies. They introduce the Research Onion in their book *Research Methods for Business Students*; the layout of the Research Onion is depicted below (*See:* Figure 3.1). This chapter covers the topics that are mentioned as layers of the onion, from research philosophy to time horizons. Chapter 4 covers the centre of the Research Onion, i.e. data collection and data analysis. The first layer is research philosophy.

Figure 3.1 The Research Onion



Source: Saunders & Lewis, 2019: 130

3.3.1 The research philosophy of this study

The first layer is research philosophy. The research philosophy that underpins this research project is interpretivism (Saunders & Lewis, 2017:11). Interpretivism

supports a qualitative research design, as it seeks an understanding of the phenomenon under investigation. In this study, customer experiences are analysed by interpreting their responses concerning themes provided by the SERVQUAL model (Ratten, 2023:12).

Small sample sizes, inductive research, and in-depth investigation support an interpretive philosophy and a qualitative approach to data collection (Saunders *et al*., 2019:145). The sample used in this study represents approximately 30% of the Masters and PhD registered student cohort (NWU, 2023d). Open-ended questions provided the opportunity for an in-depth investigation into the respondents' accounts of their experiences of the HDA's services. These responses were interpreted so that findings, conclusions, and recommendations could be made from the information provided in the survey responses.

3.3.1.1 Research paradigm

A research paradigm is supported by a research philosophy. The term research paradigm refers to the beliefs that a researcher has regarding the nature of knowledge and how it is developed in the process of the research project (Saunders & Lewis, 2017:11). According to Saunders *et al*. (2019:130), the researcher's ontological (the nature of knowledge) and epistemological (how knowledge is developed) assumptions may influence the research design. They also propose that 'a consistent set of assumptions will constitute a credible research philosophy', which provides a safeguard against possible research bias, as mentioned above. The literature study provides information on services, quality, and customer satisfaction, from which a consistent set of assumptions were derived. These were tested in the analysis of the data and are described in Chapter 4 of this study.

3.3.2 The approach to theory development

According to Saunders *et al*. (2019: 190), an inductive research approach is where research needs to describe and understand a phenomenon. He mentions that the interpretivist paradigm supports the inductive approach. Therefore, an inductive approach to theory development was used to support the qualitative research approach. The qualitative data collected from the surveys was used to conduct the thematic data analysis, and the quantitative data from the surveys was used to triangulate findings from the qualitative research analysis (Saunders *et al.*,

2019:191). The inductive approach allows for using information to make findings and reach conclusions about the data, as mentioned in Chapters 4 and 5.

A qualitative method was used for the secondary survey data, which consisted of open-ended questions, and was collected from 2020 until 2023. The secondary data was already available for this study, and the original unprocessed versions of the surveys contained both quantitative and qualitative data. Only the responses to the open-ended questions were analysed according to the themes of the SERVQUAL model elements discussed in the literature review (*See*: point 2.9) (Saunders *et al*., 2019:154). The SERVQUAL model is relevant to this study because it measures customer satisfaction and service quality (Quinlan, C. 2011:352).

3.3.3 Methodology

The research approach to this study was qualitative. The qualitative approach was the logical choice, as the researcher was seeking a deeper understanding of the data collected to answer the research questions (Ratten, 2023:12). The data from the open-ended questions guided the data analyses and the findings so that the research questions may be answered (Bhandari, 2023).

3.3.4 Research strategy

According to Saunders *et al*. (2019:222), the research strategy refers to the step-by-step plan of action that gives direction to your research and ensures that the objectives set out in the research proposal are reached. It helps the researcher to answer the questions and links methodology to data collection and analysis methods.

For this study, a survey strategy was used. It comprises only secondary data collected from surveys that were voluntarily completed by customers of the HDA office after interaction with an individual staff member. The survey was embedded in email signatures of HDA staff from 2020 to 2023.

Online data available on NWU systems, as well as other sources, including publications by the NWU, such as the Annual Performance Plan, assisted with information to complete the secondary data analysis. These were used to support the motivation and purpose of this research project. All the above information was

used to determine customer expectations, challenges, and gaps in the services that the HDA office renders to its customers.

3.3.5 Time horizon

The time horizon describes the points in time used to collect data. There are two (2) time horizon options: cross-sectional, which is a short-term study, and longitudinal, where data is collected over an extended period to compare the data collected at each point in time (Joubert, 2021a). This study utilises a longitudinal time horizon, as data was collected from 2020 to 2023. A four-year period could not be regarded as a cross-sectional time horizon; this would rather refer to once-off data collection (Bianchi, 2021:35).

3.4 Data collection

The context of the data collection for this study is mentioned above. Surveys created for the Quality Enhancement Drive of the NWU provided the data used in this study as a secondary source.

According to Kumar (2011:8), the research process must have certain characteristics. Data collection must conform to certain standards, the first of which is control, which is nearly impossible in the social sciences due to the human element. A good practice is to include these factors when writing up research.

The second standard is rigour, which means that data collection procedures should be relevant, appropriate, and justified. According to Morse *et al.* (2002:14), research is not valuable and scientific if rigorousness is not applied. Rigorousness refers to the scientific handling of data, such as the proper coding of data and validation of participants. The data collected for this study complies with this requirement, as it was collected from a questionnaire that asks relevant questions on the services expected/required by customers of the HDA office. The coding used is derived from a scientifically accepted model, which is used to measure the customers' satisfaction with the services against quality standards (Amist, 2017:31; Cuofano, 2023). The Likert scale responses were also used to triangulate the data collected from the open-ended questions.

3.4.1 Measuring instrument

The research objective was to seek a deeper understanding of the customer experiences of HDA customers. Secondary data was sourced internally from a

questionnaire provided by the HDA office. A specific research instrument was not required for this study, but the surveys consisted of Likert scale-type questions as well as open-ended questions (Bhandari, 2023). The scale of the Likert scale for the surveys was 1 for poor to 4 for excellent. The keys are displayed on the graphs (*See:* point 4.4.1) as 1, 2, 3 and 4.

3.4.2 Data classification

The data for this study is classified as secondary data, as mentioned above. It could also be classified as internal data, as it was collected within the boundaries of the NWU's operations (Gerber, 2023). It could also be classified as raw data, as it was collected from surveys. However, it was then categorised and sorted into themes for the purpose of analysing the collected data.

3.4.3 Trustworthiness, validity, and reliability of data

According to Morse *et al.* (2002:14), rigorous data collection and analysis is required to attain the trustworthiness, validity, and reliability of data. The main question to address in this section is how to ascertain with certainty the trustworthiness, validity, and reliability of the collected data. There are some checks that can be done to determine if that is indeed the case.

The method by which the data was collected should be appropriate and applicable for its purpose. According to Ramya *et al.* (2019:39), surveys are the correct way to collect the kind of data the researcher needs to determine customer satisfaction in the division under investigation.

According to Gerber (2023), valid and reliable data meet the following criteria:

Currency of the data: the information is available and verifiable, contained in Excel worksheets that will be submitted for perusal as addendums to this study.

Objective of the data collected: the information was collected from surveys, and imbedded in HDA staff's email signatures after an interaction with the HDA staff member who assisted with a customer query. The purpose was to rate the service of each individual staff member per customer interaction.

Nature of the data: questions were asked in a Likert scale format, which was supported by an open-ended question. The content of the questions was focused on customer satisfaction concerning the services rendered, which is the objective of this study, as it relates to quality as an operational management element.

Relevance of the data: only customers of the HDA office received the survey; therefore, the quality of the service delivery was relevant to the customer for being assisted in a specific life cycle step via the staff member's services counter.

Accuracy of the data: continuing with the approach proposed by Gerber (2023), the level of the accuracy of the data is to be determined. The answers collected in the secondary data provide the relevant information for the questions that were asked. Clear themes could be identified from the SERVQUAL model, which is a framework to test for customer satisfaction and quality of services.

Kumar (2011:8) elaborates that verifiable and valid data provides research findings that are correct, reproducible and that can be measured by the researcher or any other person on a second attempt. The secondary data that were used in this study consist of data collected through five surveys, which were completed on different occasions and over different periods of time between 2020 and 2023. The requirement that it should be verifiable and replicable has been adhered to in this study. More than one survey was analysed to ensure that the process was duplicated for verifiable findings.

Internal validity refers to how aligned the sampling is to the stated objectives. Thietart, *et al.* (2001:147) state that sampling choices determine the validity of a study as well. In the case of this study, the sampling choice for testing customer satisfaction was the customers of the HDA office. The participants voluntarily provided an identifying number. The responses could therefore be validated by an existing record of a person on the NWU database.

The external validity of research is tested against external factors by means of the extrapolation of the collected data. (Thietart, *et al.*, 2001:147). The external validity of data in this context refers to external factors, including the possible influence of customer satisfaction on enrolment and graduate figures. External factors included the effect of COVID-19 on the operations of the NWU. The data did investigate on this external factor. Another example is: political unrest that causes the closure of campuses and a lack of service delivery for periods have been experienced between 2020 and 2023. Such evaluation is outside of the scope of the secondary data that was collected for this study.

3.4.4 Methods of data analysis

For this study, only the data from the open-ended questions were used for the data analysis described in Chapter 4. The researcher conducted a thematic analysis of the answers to the open-ended questions posed to survey participants. The researcher analysed the data utilising codes and themes derived from the 5 elements of quality proposed in the SERVQUAL model and from the points listed by Fitzsimmons and Fitzsimmons (2008:41). SERVQUAL is a recognised tool for measuring quality and customer satisfaction (Amist, 2017:31; Cuofano, 2023). The analytical software tool for qualitative data text interpretation is ATLAS.ti (Archive for Technology, Lifeworld and Everyday Language). ALTAS.ti has a variety of coding tools to assist the researcher with coding different types of data collected during qualitative research activities (Friese, 2019:9). The researcher conducted a thematic analysis based on the coding data using Excel formulas. Therefore, it is reported that for the data analysis, a manual data analysis was conducted by the researcher for this study (Joubert, 2021b).

3.5 The research process diagram

Table 3.1 Diagram of the research method steps followed by the researcher.

Step guided by Research Onion	Description	Reference point
Context of the study	Quality enhancement requirements of the NWU	Chapter 3
Purpose of the study	To capture the 'moment of truth' of the experience of the customer with the services of HDA	Chapter 1
Setting	Higher Degree Administration in-house surveys	Chapter 4
Philosophical position	Positivism (quantitative data) and interpretivism (qualitative data)	Chapters 3 and 4
Methodological choice	Qualitative research method	Chapter 3
Data collection technique	Surveys with open-ended questions	Chapter 4
Analytical approach to theory development	Inductive approach	Chapter 4
Analytical techniques	SERVQUAL themes used to code responses from the participants	Chapter 4
Source of data used	HDA internal surveys	Chapter 3

Source: Bianchi, 2023

3.6 Ethical considerations

This study complies with the NWU Research Ethics Policy (NWU, 2021) and received ethics clearance. The main data source for this study is secondary data collected from an ongoing survey of the HDA office that measures customer feedback on services delivered at the HDA. The data that was utilised for this study spans from 2020 until 2023. Permission to use the data was obtained.

3.7 Chapter conclusion

The theory described in this chapter provided the researcher with a basis for conducting methodologically rigorous research. This structured research approach, based on scientific tools and methods, underpins the methodological choice, research strategy, data collection techniques, and analysis used in this study. The Research Onion guided the structure of this report. The open-ended questions from surveys that were used in this study were suitable for the qualitative research design that was followed. This chapter therefore supports the research objectives that refer to conduction the empirical study that is described in Chapter 4.

The next chapter elaborates on the techniques of data collection and analysis used to obtain the secondary data used in this study. The data used in this study was collected from surveys that were compiled by the HDA office. The surveys were aimed at evaluating the service level of the relevant staff member at the time of the service. This is where the 'moment of truth' mentioned in Chapter 2 was captured regarding the customer's experience of the service received (Heizer *et al.*, 2020:213).

This study investigates customer expectation and satisfaction using selected OM principles; it concludes that customer satisfaction is possible when implementing OM principles.

Chapter 4

4. Empirical study: presentation of data collected and data analysis

4.1 Introduction

Chapter 4 focuses on the empirical study. It aims to report on how the problem statement and objectives of the research project have been addressed (Saunders *et al*., 2019:161).

The purpose of the study is to determine how implementing Operational Management principles can contribute to improving customer services in one of the support offices of the NWU: the HDA office. The Operation Management element that is relevant in this chapter is quality. The background of this investigation is the statement put forward in the NWU's Strategic Plan (NWU,2018/2023e), which states that the NWU undertakes to provide a 'high standard' of operations to customers (NWU, 2021).

A standard, according to the Collins Online Dictionary, is 'a level of quality or achievement, especially a level that is thought to be acceptable' (Collins Dictionary, 2023).

In view of this definition, this section is underpinned by the theory on service experience and quality investigated in Chapter 2 (*See*: point 2.8.1). The questions posed to customers in the surveys were aimed at testing the customer experience of the HDA services. The themes in the data analysis were derived from the SERVQUAL model (*See*: point 2.9). According to Amist (2017:31). SERVQUAL is a 'service quality framework' that is set to measure the level of quality in service sectors.

The services were measured via feedback from customers about daily interactions with the staff of the HDA office. The services entail the exchange of information, forms, and documents between different parties that pertain to the progress of students in their studies. After each email interaction with a customer, customers were provided with an option to participate in a survey. The survey was presented as a voluntary activity. The link to the survey was embedded in the email signatures

of the staff of the HDA office. The survey contains questions that guide the customer to an evaluation of the services rendered by the staff member.

According to Ramya *et al.* (2019:39), surveys are a scientifically rigorous way to measure service quality and customer satisfaction. They support surveys as a method as it enables researchers to ask important questions that could measure the intangible elements of service delivery. The HDA office functions within the larger framework of the support and administrative services of the NWU. The focus of this chapter is found in the centre of the Research Onion mentioned in Chapter 3 (*See* point 3.3), i.e., data collection and analysis.

4.2 Origin of the HDA surveys

The questions posed during the Quality Workshop of 2018 (*See* point 3.1) were (NWU, 2023):

- How do you measure the quality of the services [sic] your division?
- Do you know what your customers say about your services?
- How do you improve your services to customers?

These questions led to the compilation of surveys for the HDA division early in 2020. First, by doing this, the division sought to answer these questions. Second, the division aimed to meet the requirements mentioned in the Quality Policy of the NWU mentioned above by first measuring service quality (*See:* point 3.1).

These surveys were completed voluntarily. The survey was presented to customers of the HDA office as a link to a Google Form embedded in the email signature of the HDA official who rendered the services. The division has been using these surveys from 2020 to date. The survey questions were updated in 2021. The survey questions are listed below. The findings from the data analysis are discussed in detail in Chapter 4. Therefore, the research design chosen for this study was to use the secondary data from the surveys, as it was ‘readily available’ for analysis (Gerber, 2023).

4.3 Study population and sampling

The term sampling indicates that the total population is not taking part in the research, as would be the case in a census where every person in the population should participate (Saunders *et al*., 2019:292). The study uses secondary data from a survey completed by customers of the HDA office. The sample group consists of the customers of the HDA office who completed a voluntary survey after an interaction with a staff member of the HDA office (Joubert, 2021b).

The population sample consists of responses to surveys that were completed by the customers of the HDA office from 2020 until 2023. The number of responses per survey range from 217 to 355. The sample group therefore represents approximately 30% of the total population of registered master's and doctoral students of the Potchefstroom campus. Some respondents were staff and examiners; therefore, this presentation is an estimate based on a number of respondents.

4.4 Presentation of the surveys and questions

The survey data provides comments from customers on possible improvements that could be considered. These comments were used to inform the building of an HOQ, which is addressed in the last chapter. The main goal is to cultivate a culture of continuous improvement in this division that—as a result of customer participation in the process—will lead to a consistent delivery of a high level of service excellence to customers, even during peak times that leads to a constraint on resources and time.

The literature review (*See:* Chapter 2) provided, among other things, insights into the topic of customer expectations and experience. The theories investigated informed the questions posed to customers in the Google Form surveys. The literature study also provided the themes for the data analysis.

Five surveys were used in this study. The first surveys were released in 2020, and data was collected between 2020 and 2023 by all HDA staff members. The initiative was taken by the HDA division to collect feedback from customers to measure their performance. The surveys that were compiled consisted of approximately five questions, each divided into two sections. The first part of the question was in a Likert scale format, depicted below in diagrams. The second part of the question

was an open-ended question. The survey that was developed in 2021 consisted of seven open-ended questions, and it utilised a similar approach. Specific questions were added to measure the website's appearance and the self-help services portal's functions (tangibles) (NWU, 2023b). All questions requested an evaluation of the interaction between the customer and the HDA staff member.

4.4.1 Presentation of quantitative data

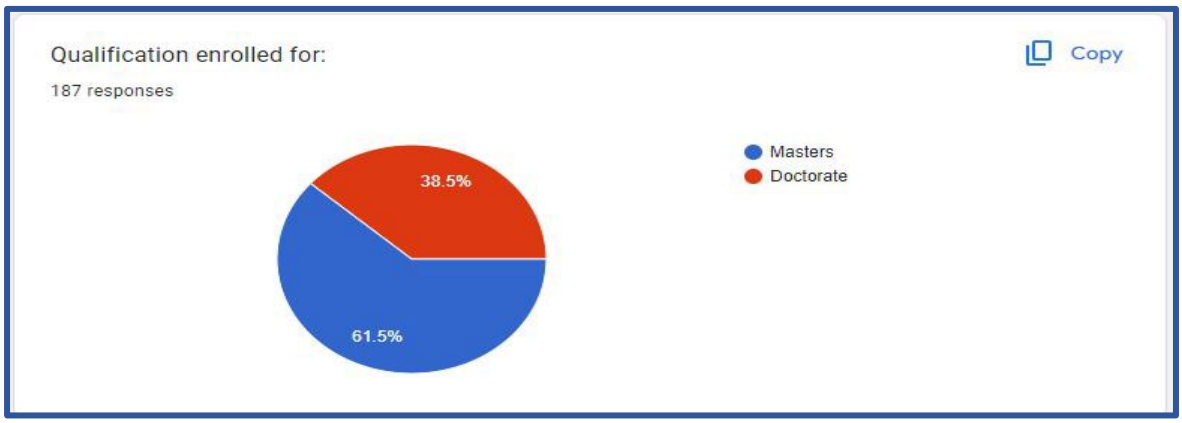
The scope of this study does not include the analysis of quantitative data. The graphics below are presented to confirm the trustworthiness of the research. It displays the responses from the Likert-scale questions that were presented to participants of the surveys. The data is presented to confirm that findings could be triangulated and that the quantitative data does not contradict the findings derived from the analysis of the secondary data. The data from five surveys are displayed below. The surveys are named according to the responses collected on the surveys. Survey 187, Survey 266, and Survey 217. The sample size for reflecting on the quantitative data is: 670 respondents.

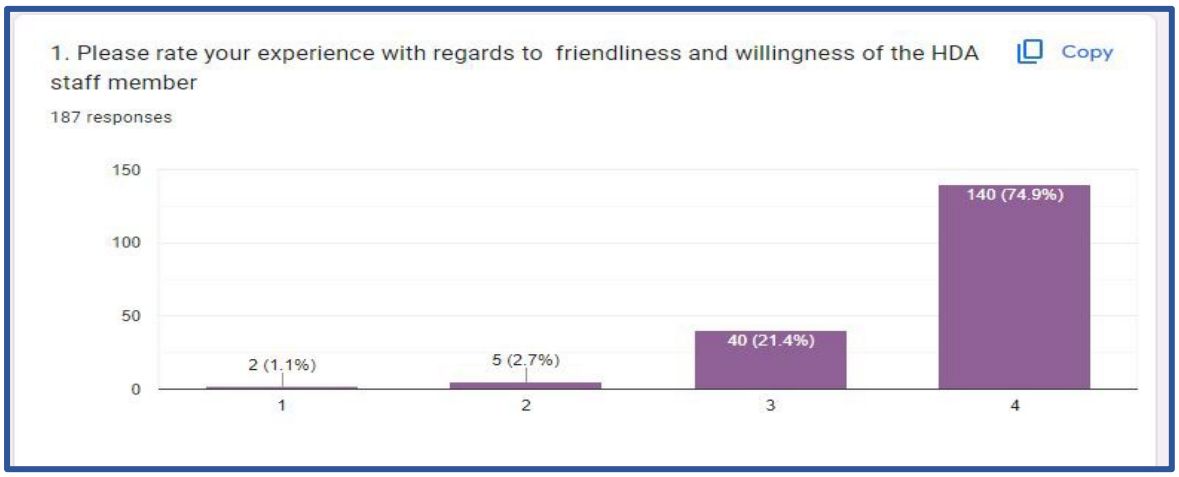
Questions 1,3, 5, 7 and 9 were the Likert-scale type questions, and questions 2, 4, 6 and 8 were the open-ended questions. Most of the Likert-scale questions were answered while some open-ended questions were not answered. The keys 1 to 4 on the graphs refer to the Likert scale values: 1 is the low score and 4 is the high score.

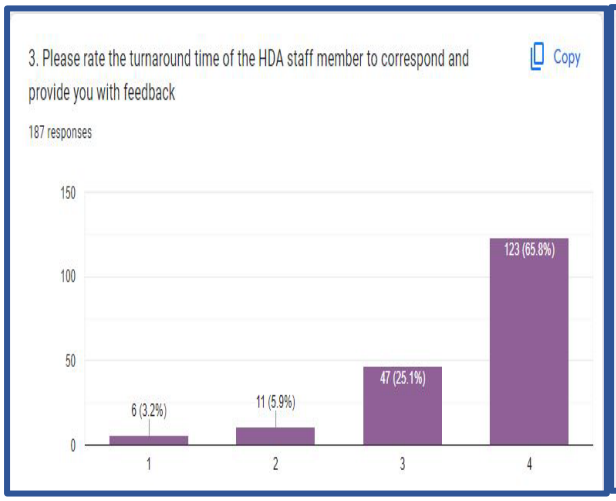
The graphs below are displayed to indicate that most responses for the quantitative questions were using the 4 values of the Likert scale for excellent. The inclusion of this data is to triangulate this data with the data collected from the open-ended questions. The data from the Likert scale responses is displayed to confirm that the responses from the Likert scale questions and the responses from the open-ended questions point in the same direction.

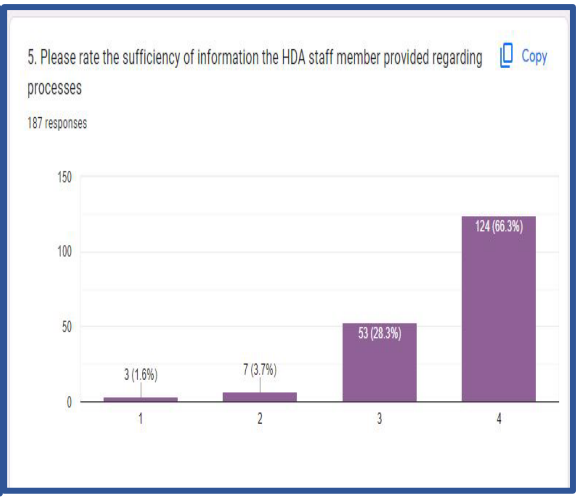
The research method for this study is qualitative, and the open-ended responses were the focus of this study.

4.4.2 Combined display of quantitative data from Survey 187





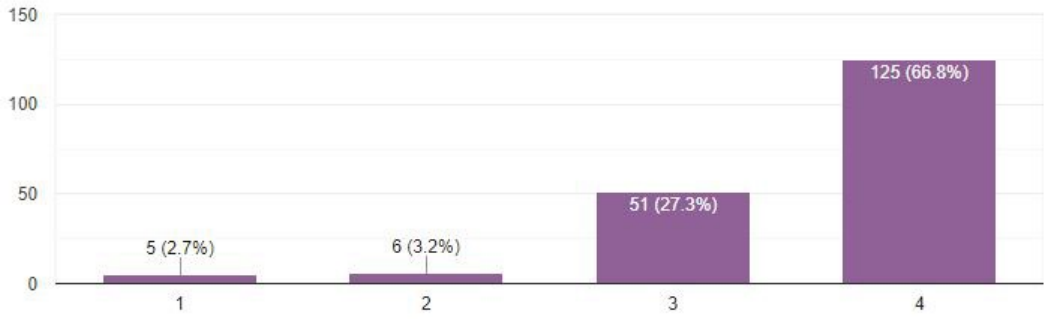




7. Please rate the overall quality of services HDA provided in assistance with your registration process

Copy

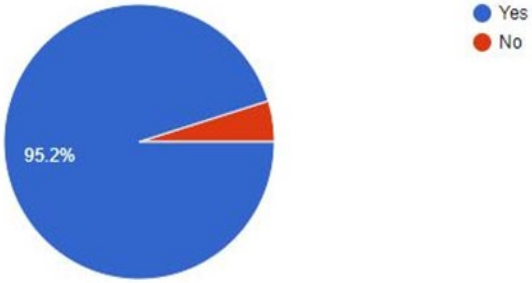
187 responses



9. Would you recommend a friend to start their postgraduate journey at the NWU?

Copy

187 responses



Identify your campus:

Copy

187 responses

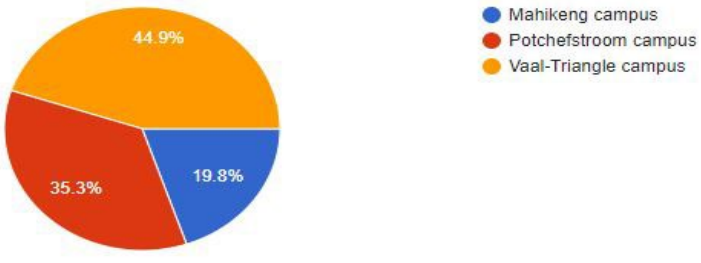
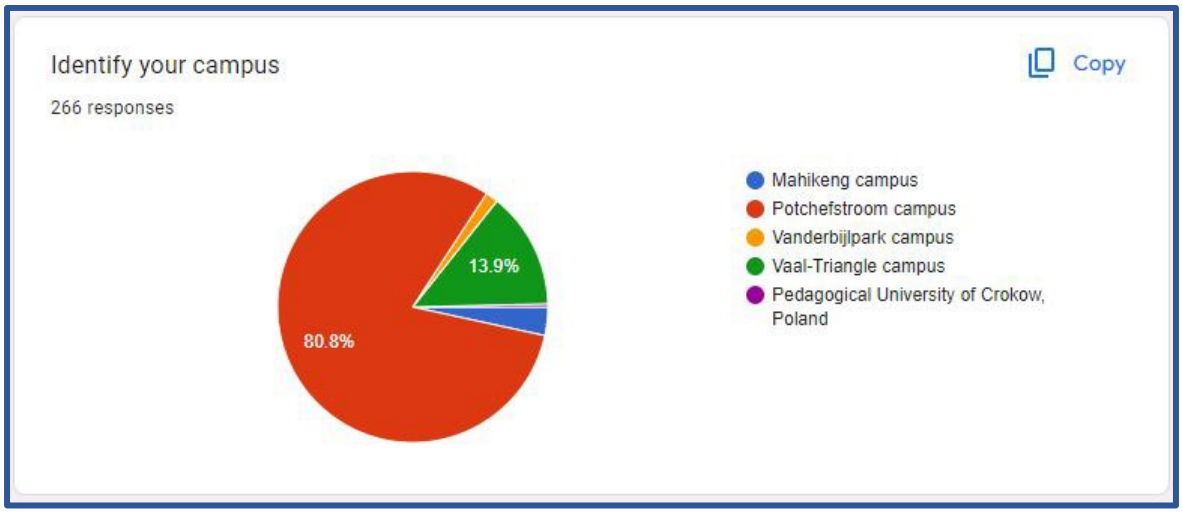
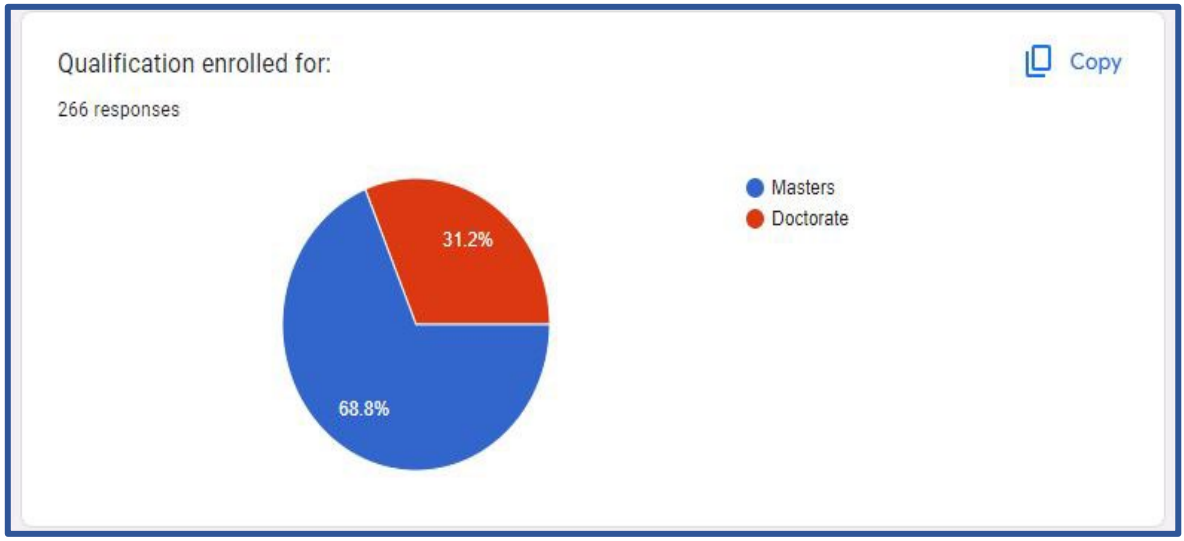
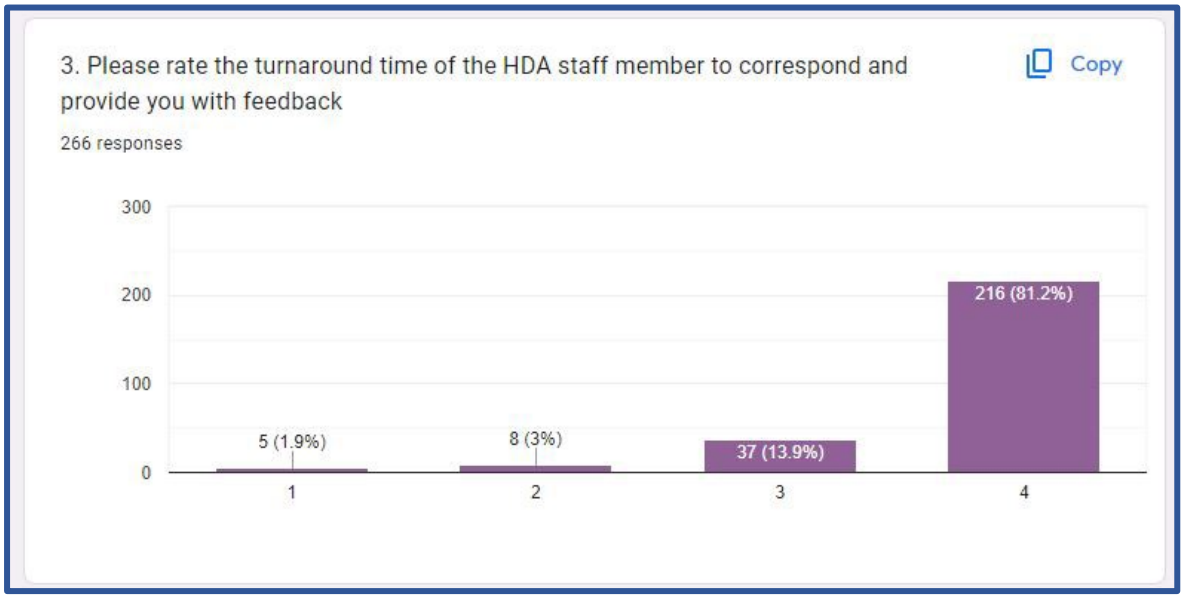


Figure 4.2 Combined display of quantitative data for survey 266



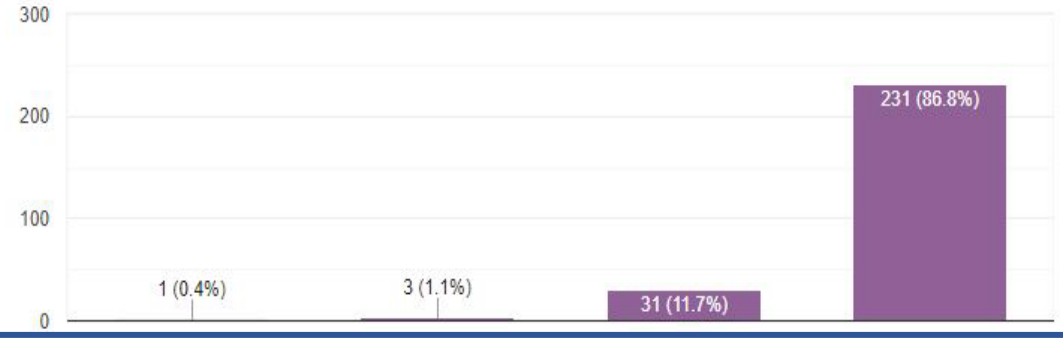




1. Please rate your experience with regards to friendliness and willingness of the HDA staff member

Copy

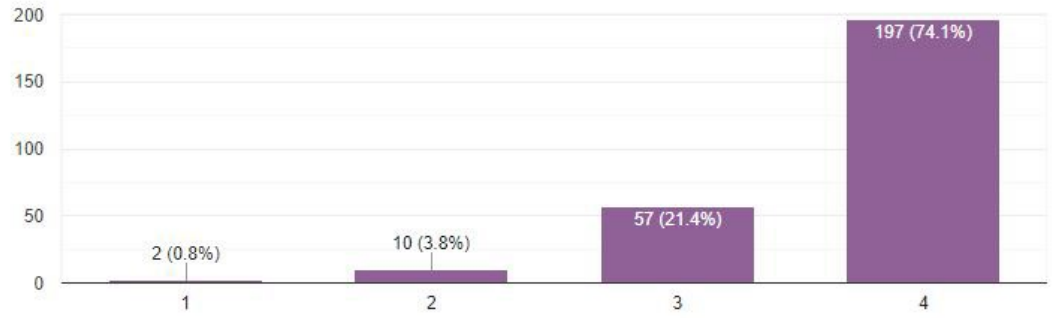
266 responses



5. Please rate the sufficiency of information the HDA staff member provided regarding processes

Copy

266 responses



7. Please rate the overall quality of services HDA provided in assistance with your submission / examination process

Copy

266 responses

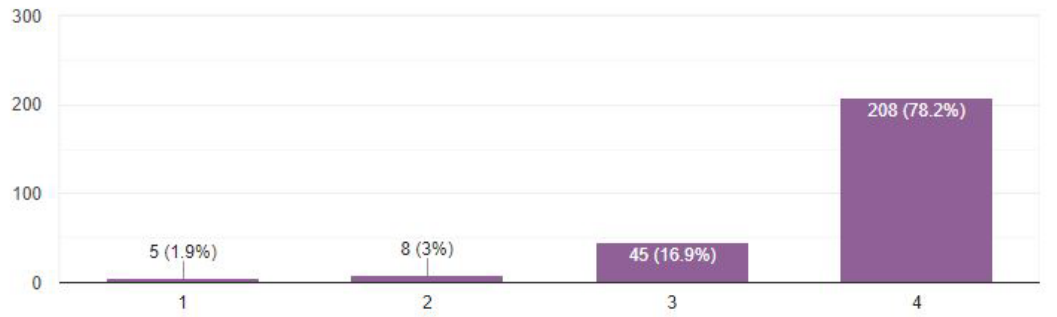
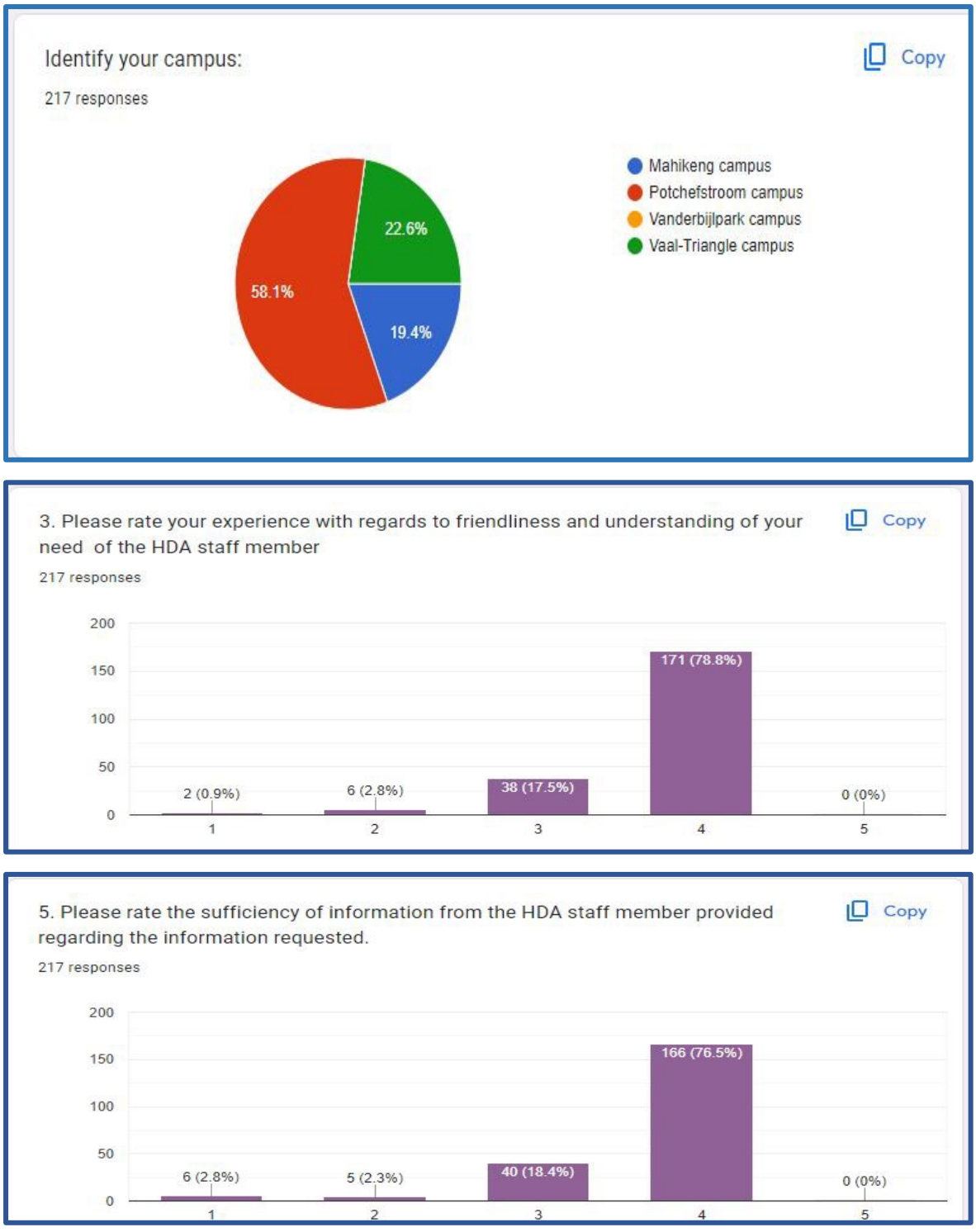
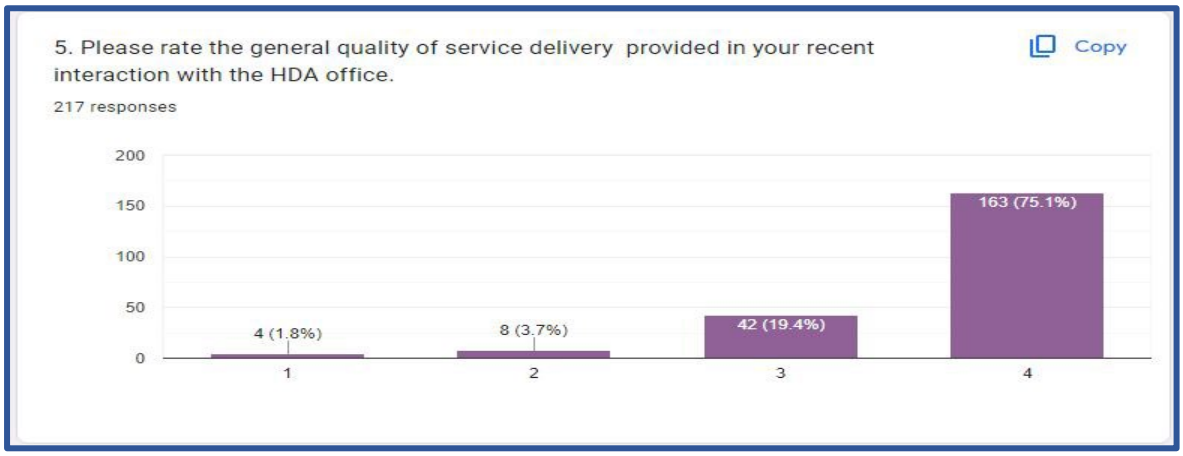
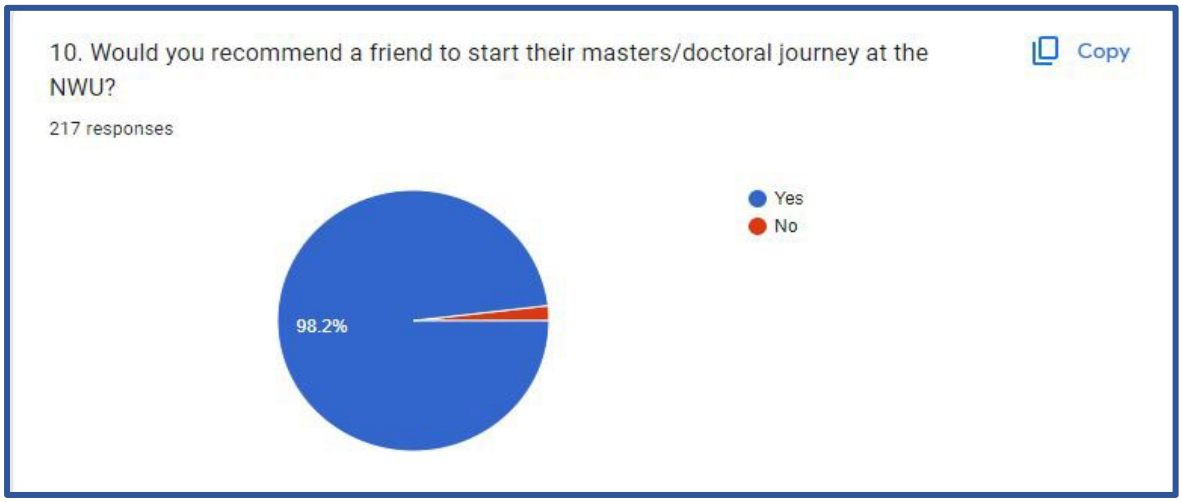


Figure 4.3 Combined display of quantitative data for Survey 217







4.2.2 Presentation of qualitative data

Qualitative data was collected from open-ended questions in the secondary data used for this study. A qualitative approach was used to analyse the data. Themes were identified based on the elements of the SERVQUAL model because this framework relates to the evaluation of service quality (Ramya *et al.*, 2019:39).

4.2.2.1 The themes used to analyse the data

There are five SERVQUAL elements that were used to analyse the data. They are: reliability, assurance, empathy, reliability, and tangibles (Chingang & Berinyuy, 2010).

4.2.3 Survey information

Five surveys were used in this study. The cumulative number of responses was 1292, which represents about 30% of the population of registered students in 2022; there were about 4400 registered masters and doctoral students in 2022 (NWU. 2023d). Most of these respondents provided a student number. The sample size of the qualitative data analysed was:1267. The ratio of the sample size to the student

cohort, can not be estimated but not calculated precisely, as a student may have completed the survey more than once over the time it was made available.

The survey questions for the first set of surveys are listed below, as well as the most relevant SERVQUAL themes that could be used to interpret the responses.

Q1: Please rate your experience regarding the friendliness and willingness of the HDA staff member. Kindly motivate your response.

The relevant SERVQUAL themes are responsiveness and empathy.

Q2: Please rate the turnaround time of the HDA staff member to correspond and provide you with feedback. Kindly motivate your response.

The relevant SERVQUAL themes are responsiveness, reliability, and assurance.

Q3: Please rate the sufficiency of information the HDA staff member provided regarding processes; Kindly motivate your response:

The relevant SERVQUAL themes are tangibles, reliability, and assurance.

Q4: Please rate the general quality of service delivery provided in your recent interaction with the HDA office. Kindly motivate your response:

The relevant SERVQUAL themes are reliability, assurance, and Responsiveness, and the expectation was that references to service excellence would be made in the open-ended responses from participants.

Q5: Please list any other comments, suggestions, or recommendations to improve our processes.

Open-ended comments relevant to a HOQ and for continuous improvement (*See:* Chapter 5).

The survey questions for the last survey were:

Q1: Please rate your experience with regards [sic] to the friendliness and professionalism of the HDA staff member. Kindly motivate your response.

The relevant SERVQUAL themes are assurance and empathy.

Q2: Please rate the sufficiency of information and feedback from the HDA staff member provided regarding your recent interaction with the HDA office. Kindly motivate your response:

The relevant SERVQUAL themes are responsiveness, reliability, and assurance.

Q3: Please rate the general quality of service delivery provided in your recent interaction with the HDA office. Kindly motivate your response:

The relevant SERVQUAL themes are tangibles, reliability, and assurance

Q4: Please rate the user-friendliness of the HDA website:

The relevant SERVQUAL theme is tangibles.

Q5: Please rate the user-friendliness of the DIY portal:

The relevant SERVQUAL theme is tangibles.

Q6: Any suggestions on improving the website and the DIY portal?

Dropdown list comments relevant to determining satisfaction with the website and DIY portal.

Q7: Any suggestions on improving the website and the DIY portal:

Dropdown list comments relevant to determining satisfaction with the website and DIY portal.

Q8: Please list any comments, suggestions, or recommendations to improve our service delivery.

Open-ended comments relevant to a HOQ and for continuous improvement (*See:* Chapter 5).

4.2.4 Survey data analysis

The data collected from the surveys were analysed using SERVQUAL elements. SERVQUAL measures customer satisfaction with a service, which is why this tool was used. According to Amist (2017:31), the dimensions of the SERVQUAL model are reliability, assurance, tangibles, empathy, and responsiveness, which are abbreviated as the RATER dimensions. The gaps were included in the tables, as well as the number of responses that refer to an element of excellence.

The table below represents the extended survey that was developed in 2021, which includes questions about the website and DIY services. The last questions are directed at improvements, and are marked with an H. These comments have been analysed for the purpose of building a HOQ, which is discussed in Chapter 5. The table below depicts the data from Survey 355. This survey has been updated by collecting more information on the role of the respondents regarding their interaction with the HDA, as well as on the NWU website.

Survey 355 is an updated version of the surveys; it was deactivated in 2022 due to duplication of some questions. Nevertheless, much data was collected during the time it was active, which is displayed in the table below. This survey aimed to collect information relating to the website and DIY portal in addition to information on customer satisfaction with the services of the HDA.

Table 4.1 Survey 355's seven questions

Survey 355 (seven-question survey) Date: 2021/12/03 until 2022/7/28								
SERVQUAL element (RATER)	**Number of responses**							**Quotes from the survey**
	Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	
Responsiveness	89	45	43	w	DIY	H	H	'They responded to my emails quickly and professionally'
Assurance	51	10	37	w	DIY	H	H	'Ms J was highly polite and professional in her communication'
Tangibles	6	25	18	w	DIY	H	H	'The quality of the information they gave me…was excellent'.
Empathy	54	11	25	w	DIY	H	H	'E has been so helpful and understanding…'
Reliability	57	71	62	w	DIY	H	H	'The information was sent timely for proper preparations'
Gap 3 requirement	2	1	1	w	DIY	H	H	'The system is too slow and too much red tape. Bad IT'.
Gap 4 promise	4	3	1	w	diy	H	H	'They were rude and did not help much, I still do not know if I can study'.
Gap 5 experience	5	3	3	w	DIY	H	H	'Taking too long to respond and reply to messages/emails.
Remarks for excellence	17	17	57	w	DIY	H	H	'R is very fast on responding to enquiries-very helpful, I am very happy for her excellent service'
Website	1)186	2) 81	3) 46	4) 41	53% satisfaction with NWU website regarding information.			Dropdown list- 1) The information was clear I could find it easily. 2) The information was not sufficient or clear. 3) I do not know where to find it. 4) I do not know what it is and have never heard of it before.
DIY Platform	1)201	2)86	3)37	4) 31	56% satisfaction regarding DIY platform information and visibility			Dropdown list- 1) The information was clear I could find it easily. 2) The information was not sufficient or clear. 3) I do not know where to find it 4) I do not know what it is and have never heard of it before.

Survey 266 below provides information spanning three years. The information gathered from this survey confirms a consistent level of service provided by the HDA over a three-year timeframe, which includes pre-, during-, and post-COVID-19 dates. The researcher, who is also the responsible person for the operations of HDA, reports from viewing the response time-stamps, that COVID-19 did not affect the operations of the HDA. The office was able to operate remotely during COVID-19, and it did not experience a significant interruption of services.

Table 4.2 Survey 266's five questions

Survey 266 (five-question survey) **29/1/2020 until 26/9/2023**						
SERVQUAL element (RATER)	**Number of responses**					**Quotes from the survey**
	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Responsiveness	84	161	13	32	H	'…but the staff member is good at her work'
Assurance	9	3	9	10	H	'the staff are all experts in their field'
Tangibles	7	2	89	16	H	'I received documentation about how to apply, which was clear and understandable'
Empathy	69	2	8	14	H	'they go the extra mile to help, explaining and communicating their expectations' 'Very helpful and patient'
Reliability	13	2	11	40	H	'the information was accurate' 'no hurdles were experienced, especially in extending my registration'
Gap 3 requirement	1	1	4	1	H	'There is room for improvement' 'the DIY services were not user friendly'
Gap 4 promise	1	3	5	3	H	'I need to continue following up, long delays of waiting, more speed, more efficiency please'
Gap 5 experience	2	5	6	6	H	'I sent emails, and I got no response' 'poor to limited response' ' Phones not answered
Remarks for excellence	7	8	11	27	H	'Her service and guidance throughout the process was excellent'
Responses: empty or not useful	49	73	88	8	H	'I am doing my proposal on my own with no proper guidance'

Survey 244 consisted of the original five questions but with a focus on the examination process. The survey began collecting information since before COVID-19, but most of the information was collected during COVID-19 when most of the staff worked from home. There is no indication of an increase in negative comments during the COVID-19 period.

Table 4.3 Survey 244's five questions

Survey 244 (five-question survey) **2020/1/31 until 2021/11/30**						
SERVQUAL element (RATER)	**Number of responses**					**Quotes from the survey**
	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Responsiveness	76	141	12	21	H	'She always come back to me within a couple of hours...' 'I was receiving prompt and timely responses'
Assurance	11	0	5	4	H	'They use a professional tone either in email or verbal over the phone and/or face to face'; 'Staff are experts in their field'
Tangibles	8	5	107	21	H	'The information and guidance provided was always correct and helpful'
Empathy	67	1	6	5	H	'Friendly staff who are willing to assist'; The staff member was willing to go the extra mile'.
Reliability	31	7	9	41	H	'the submission process was seamless and provided clear and concise guidance'; efficient and effective for purpose'.
Gap 3 requirement	1	1	3	2	H	'Not to prompt in communicating info'; 'There was no information given'.
Gap 4 promise	1	4	4	3	H	'It took a long while to get a response'; 'I sent emails and got no response'.
Gap 5 experience	1	6	5	6	H	'I would like to see more speed and feedback as I am a PhD student. I need a Yes or a No'.
Remarks for excellence	12	6	7	34	H	'The response rate and quality of service is impeccable'
Responses: empty or not useful	60	69	80	89	H	'I have not yet submitted my thesis'

The survey below, Survey 217, provides more information on customer interactions during the application and registration process. The data from this survey also confirms that service quality did not drop during COVID-19.

Table 4.4 Survey 217's five questions

Survey 217 (five-question survey) **21/1/2020 until 2021/12/02**						
SERVQUAL element (RATER)	**Number of responses**					**Quotes from the survey**
	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Responsiveness	46	82	15	15	H	'Most of her feedback were within a few minutes after enquiring:
Assurance	31	13	15	26	H	'Ms H was very friendly throughout the application process, and she was willing to advise on each and every step of the process'
Tangibles	12	7	40	10	H	'The information was clear and very straightforward'
Empathy	42	8	18	5	H	'The communication on helping me to apply uplifted my spirit...'
Reliability	13	12	32	27	H	'Kept me posted on every step of the application'
Gap 3 requirement	1	2	2	0	H	'Due to a spelling mistake on my name, I was not getting my acceptance letter in time'
Gap 4 promise	2	3	0	0	H	'One office takes forever to reply' 'I was registered for the wrong course and it took 2 years to register to the correct department'
Gap 5 experience	1	5	1	3	H	'the person took longer than expected' 'The response was not prompt, it took over 3 days to receive a response'
Remarks for excellence	3	3	2	13	H	'She is an expert in her area of service' 'Highly efficient' 'in my study experience I have never experienced such competency from staff members'
Responses: empty or not useful	49	57	71	84	H	'More reasonable for me' 'Yes'

The last survey, Survey 187, was only partially completed as the researcher found that saturation of information had been reached. No new information that could alter findings was presented in the open-ended responses from participants in this survey.

Table 4.5 Survey 187's five questions

Survey 187 (five-question survey) **Date: 21/1/2020 until 20/9/2023**						
SERVQUAL element (RATER)	**Number of responses**					**from the survey**
Responsiveness	55	14	7			...uick response to emails.'; They always get back to us in a very short period of time.'
Assurance	1[illegible]				H	'They assisted me when I was unsure about the administration regarding the extension of my studies.'
Tangibles	[illegible]	3	7	2	H	'Easy to read documents and communiques.'
Empathy	51	6	10	7	H	'Always willing to listen and assist.'
Reliability	9	6	0	4	H	'They always give feedback on time.'
Gap 3 requirement	4	0	0	0	H	'The information on bursaries is not very clear.'
Gap 4 promise	1	0	0	1	H	'The process was not very straightforward.'
Gap 5 experience	1	0	2	1	H	'Her answer was a bit ambiguous.' I am sending emails for a week with no response.'
Remarks for excellence	4	0	1	3	H	'The service was fantastic.'
Responses: empty or not useful					H	

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Each survey also contained a question that requested recommendations or suggestions on how HDA could improve current services. It is in the comments to this question that the voice of the customer or 'the voice of truth', mentioned in Chapter 2, was captured. These comments were analysed to identify elements of

services listed by Fitzsimmons and Fitzsimmons (2008:217). Selected comments, shown below, were used for the HOQ (*See:* Figure 5.1) in Chapter 5.

Table 4.6 Recommendations and suggestions from secondary data

Survey	Open-ended response from participant	Service element
187	Online registration; Improve online communication and networking…	System support
	Increase the staff	Staff capacity
	Kindly upload step by step procedure of registration…	Information
	Please provide information regarding prospective registration	Information
	Step-by-step protocols will be helpful	Process & procedures
	Automatically send signature requests to necessary parties	System support
	More information to be provided after the application has been received.	Information
	Send out reminders to students	Information
	The university may have extra individuals to assist during registration	Staff capacity, training
217	Intermittent services when staff are out of office, please address for consistency	Staff capacity
	Please expedite the release of the outcome of applications to 30 days	Information
	The online portal needs to be upgraded because we struggled to slot information	System support
	My suggestion is the online system is something difficult to do.	Information/System
	Please provide the necessary documentation	Training/Information
	More information about the timeslots that we need to apply	Information
	Information on banking details for easy online payments	Information
	More information about the application process	Training/Information
244	Clearer information on applying for postgraduate studies available on the web	Information/system
	Transparent guidelines on the process of the completion of a degree	Training/Process &Procedure

	More competent and accommodating staff are needed such as D	Staff capacity/Training
	Regular progress monitoring for students is needed	System support
	Information on online submissions should be sent sooner	Training/Information
	The DIY system has issues, no other comments	System support
	Speed up the approval process at this XX department.	Training/Staff capacity
	Please provide better communication	Information/Training
266	A dashboard of information is needed to monitor one's application	Information/System
	Improve online services	System support
	Please keep students informed regarding the marking process for examination	Training/Information
	Keep reminding students about due dates	Information
	Regular feedback for timelines on when results could be available	Information/training
	Tracking of process and progress information in system is needed	System support
	Apart from the DIY system the services were good especially Ms J	System support
355	Forms could be integrated with links to the post-graduate website	Information/system
	Update the information on the current platforms	Information/Training
	Make graduation dates available to students we need to plan properly	Information/Training
	Students should be made aware of the DIY portal and the HDA website	Training/system
	Give the correct information	Training/Process & p
	Make an infographic with basic steps in submission for examination	Process & p/training
	Information on where to get help if you get an error message on the DIY system	System support

Source: Secondary data from surveys

4.3 Gaps identified during data analysis and findings

Gaps were identified from the secondary data used for this study that relate to the SERVQUAL framework. The SERVQUAL framework mentions five gaps in service delivery regarding customer expectations (Amist, 2017:31).

Table 4.7 The SERVQUAL gaps

Nr	Name of Gap	Description of Gap
1	The management perception gap.	The difference between what customers really want and what management thinks their expectations are; thus, not understanding the market.
2	The quality specification gap.	The difference between management's perception of what customers expect and the details of service delivery in terms of service design and performance standards that management provides to customers.
3	The service delivery gap.	The difference between what management would require the services to be, and what is actually offered by front-line staff.
4	The market communication gap.	The difference between the promise made to customers regarding what to expect and the actual customer experience.
5	Perceived services quality gap	The overall difference between the expected service and the experience of the service, in the culmination of Gaps 1 to 4.

Source: Amist, 2017:31

From the information mentioned above, the survey collected information that addressed Gaps 3 to 5, which are highlighted in orange. Gaps 1 and 2 could be the focus of follow-up research regarding the quality of services and its Gaps.

4.4 Analysis of the data

The data used for this study was collected through surveys that were distributed by the staff of the HDA office. A Google Form that could be accessed via a link embedded in the signatures of staff members was completed voluntarily by customers of the office. It consisted of Likert scale data as well as open-ended data.

4.4.1 Findings from the qualitative data

According to Ratten (2023:12), research findings may be documented when saturation of data analysis has been reached. It implies that no new findings will emerge from further data collection or analysis.

In this study, data analysis of the first four surveys resulted in a scenario of data saturation. Therefore, the researcher is confident in stating that there is sufficient data to support the theoretical findings of Chapter 2 as well as the empirical findings from the data analysis of the surveys.

Finding 1:

The implementation of OM strategic decisions in the HDA office created general customer satisfaction with the services delivered by most staff of the HDA most of the time.

Finding 2:

The trustworthiness of the data collected can be confirmed by the response frequency on the open-ended questions.

- Question 1 (Q1) relates to responsiveness and empathy, and in every survey, these were the highest number of responses for Question 1.
- Similarly, Question 2 (Q2) relates to responsiveness regarding feedback, and in all surveys, responsiveness had the highest score of all the themes.
- Question 3 (Q3) relates to tangibles and reliability, and in all cases, these responses were the highest for this question.
- Question 4 (Q4) rates general quality, and received higher scores in assurance, reliability, and excellence remarks than the other questions.

Finding 3:

There are several negative remarks from participants regarding services delivered by HDA staff. The SERVQUAL framework assisted in identifying and naming the gaps. This indicates that a second phase of a study on customer satisfaction is necessary, which is continuous improvement. Customer suggestions collected from Question 5 of each survey will contribute to the second phase of the project.

Finding 4:

The frequency of comments expressing satisfaction with the services is much higher than that of comments expressing a negative experience. This shows that HDA was able to deliver on the promise of the NWU to provide a high standard of service as a norm (NWU, 2018b).

Finding 5:

The responses that comment on service level excellence are lower than the RATER responses. This indicates that service excellence is not yet established as a norm in the HDA office.

Finding 6:

There is no clear link between peak-time slots and a lower level of service delivery ratings. The researcher deducts that the negative remarks are an indication of the variability of services, as discussed below. An individual staff member's personal situation, workstation constraint, or underperformance during an interaction with a customer are the most likely reasons for the negative remarks collected in the surveys.

Finding 7:

In the one survey where questions were asked about the website and the DIY platform, participants expressed uncertainty and the need for more information is expressed.

Table 4.8 Variabilities that affected service delivery in HDA during surveys

Type category of variability	Example
Arrival variability	The customers demanding the service do not ask for it in predictable time frames or numbers. Many interaction requests close to deadlines can create a delay in responses, which is one of the most frequent negative remarks collected in the survey.
Capability variability	The level of knowledge, physical ability, and skills of customers or staff may vary. In most cases, HDA staff were commended for their level of expertise. In some cases, negative remarks relate to a lack of decision-making information available to the customers.
Effort variability	The level of commitment to the action required by the customer and the service may vary. The NWU promises a high standard of service delivery, which requires effort from staff. Every negative remark reflects a lack of effort to deliver a high standard of service.

Source: Fitszimmons & Fitszimmons, 2016:258, adapted by the researcher for the findings of the research.

Finding 8:

Of the five gaps that can be measured by means of SERVQUAL elements, only three could be measured from the secondary data collected. The other two gaps fall outside of the operations and responsibilities of the HDA. These gaps are discussed in Chapter 5.

Finding 9:

There is a clear link between staff that are commended for excellent services and the performance rating scores of the highest performers of the HDA division. (The researcher is responsible for the rating of HDA staff, but the information may not be included as part of this study because it is confidential information).

4.4.2 Findings from quantitative data

There are two main findings from the quantitative data that were not formally used in the data analysis of the secondary data for this study.

Finding 1:

The quantitative data and the qualitative data correspond regarding a generally high standard of service delivery levels from the HDA office staff. Every question on the survey consisted of a Likert-scale type response and an open-ended type response. The Likert-scale questions were set to1 to 4, 1 being the lowest rating and 4 being the highest.

Finding 2:

The quantitative data confirms the trustworthiness of the research and could be triangulated with the results of the data from the open-ended questions.

4.5 Chapter conclusion

This chapter addresses the following research objectives:

- To capture (via an empirical study) ‘the voice of the customer’.
- To measure customer satisfaction against customer expectation regarding the services rendered by the HDA department.
- To gather HDA office customer recommendations for improvement.
- To find the gap between customer expectation and the services rendered,

The quality of the services rendered by the Higher Degree Administration office was assessed through surveys that were presented to customers, as mentioned earlier.

Each respondent's moment of truth that has been captured in the surveys was used in this study to establish whether customer expectations have been met by the HDA office.

The research objective was to seek a deeper understanding of the HDA services as a 'lived experience', which was captured in surveys. It is regarded as the 'moment of truth' from the customer in their own words, expressing their experience of the services delivered. The secondary data provided insights into the ratings customers gave on services delivered. It included comments on satisfaction and suggestions made in the responses to the open-ended questions. These were used in the qualitative data analysis of the responses gathered from the surveys conducted from 2020 to 2023. The next chapter concludes the research conducted for this study by using the findings from the data analysis of Chapter 4 to provide recommendations, build a House of Quality to improve process design, and elaborate on possible future studies regarding continuous improvement and reaching service excellence as a standard for the HDA office.

Chapter 5

5. Conclusion and recommendations

5.1 Introduction

In Chapter 1 of this study, the background of the study, problem statement, and research objectives are stated. Chapter 2 investigates relevant literature on the topic under investigation, which, in a nutshell, is OM principles and customer satisfaction. Chapter 3 studied the research methodology used for this study, which includes the research design, of which deductive research using a qualitative approach was selected. Chapter 4 presents the collected data and how it was analysed, which was guided by the research design used for this study. The analysis of the data led to a deeper understanding of the topic under investigation. Chapter 5 of this study describes the possible contribution of the study to the NWU environment and the discipline of OM. This chapter also includes recommendations and prospects for further study on the topic.

5.2 Conclusions from findings

The survey data as well as the literature study contributed to findings made as a result of this study. The findings from the data led to the following conclusions:

1) The Higher Degree Administration office benefited from implementing operations quality as a strategic decision. The impact of implementing quality in operations led to surveys being compiled to measure customer satisfaction, which are used in this study.

2) The HDA office provides a high standard of services to clients, which is confirmed by 90% of the responses received from the surveys.

3) Continuous improvement (concerning services) can be implemented by using data from the survey and by using the voice of the customer to address problems that were reported concerning several topics of interest to the customers of the HDA office.

4) In the surveys, respondents sometimes added the name of the staff member that they were evaluating. Mostly, these were also staff that received ratings of service

excellence from the respondents. This data corresponds with performance ratings that are completed annually by the researcher.

5.3 Recommendations from the literature review and data analysis

The researcher found that both the literature review, as well as the secondary data, provided insights into the topic under investigation. These insights are presented as recommendations from this study.

5.3.1 Recommendations from the literature review.

The diagram that depicts the creation of a service (*See:* Figure 2.2) introduced feedback from customers on implementing continuous improvement; a principle that is applied in the HDA office by implementing surveys to collect customer feedback concerning service delivery.

The recommendation is that the feedback from the customers should be collected on a continuous basis from surveys. Analysis of this data should inform all activities for continuous improvement and process design reviews. The survey data may assist in 1) staying up to date with the needs of customers 2) creating a culture of continuous improvement where service excellence is the main aim of service delivery activities.

5.3.2 Recommendations from data analysis

Service level management entails gauging whether the objectives of the organisation are met. It requires the implementing constant improvement, with investigations following to identify where improvements are needed to address service level quality.

Recommendation 1:

The HDA office should continue implementing OM principles. Continuous improvement that is based on building a HOQ and feedback from customers is required to reach a more constant level of service excellence.

Recommendation 2:

Providing training to the staff is proposed to ensure an expert staff cohort capable of addressing the customers' needs.

Recommendation 3:

There is a need for benchmarking to complete the competitor analysis in the HOQ (*See*: Figure 5.1). The competitive edge that is provided by service excellence should be measured in comparison to peer universities, such as the University of Johannesburg, the University of the Free-State, and the University of Pretoria.

Recommendation 4:

It should be mandatory for all staff to send the survey that collects feedback from customers after an interaction with the HDA office; this will enable a complete picture of the level of service delivery in the HDA office.

Recommendation 5:

The unintended consequence of the data collected from the surveys was the probable support it could give to the annual performance appraisal process. The data collected indicates a direct correlation between staff performance and the rating of their services by means of the mentioning of names in the data that was collected via the surveys.

Recommendation 6:

A HOQ should be built from the collected data to ensure that the voice of the customer is recorded. From this effort, a culture of continuous improvement is fostered to ensure that suggestions from customers are built into the process design of the services and the system, and in the information distributed to students on the web, or upon request.

5.3.3 Recommendations for future studies

The researcher proposes conducting benchmarking with peer universities. The data collected from the benchmarking will ensure that a complete picture of the quality process is obtained. The complete picture will include an evaluation of peer universities' services against the services of the NWU.

The researcher also proposes that the HOQ is completed after the benchmarking has been done. In this way, it could be established whether the NWU has gained a competitive advantage over its peers in the market, as it is a goal mentioned in its strategy statements (NWU: 2023e).

A future study using the second round of the data collected from surveys, which is to be based on the SERVQUAL framework, could be conducted as a follow-up

study. Data could be compared to establish whether service excellence has been achieved by implementing quality and a culture of continuous improvement (as mentioned in the recommendations).

5.4 House of Quality

Given Recommendation 6, the researcher collected the needed information to build an HOQ for the HDA division. A HOQ is also referred to as a Quality Function Deployment (QFD). According to Sabale (2019), 'a quality function deployment is a process and set of tools used to effectively define customer requirements and convert them into detailed engineering specifications and plans to produce the products that fulfil those requirements.' The name Quality Function Deployment is derived from Japanese symbols that explain the concept in three steps (Verduyn, 2012). They are:

- Quality: quality features, attributes, and qualities,
- Function: function or mechanism,
- Deployment: deployment, diffusion, development, or evolution.

The HOQ is one of the tools proposed in the OM strategic decisions on quality. The International Quality Standard List includes a code for quality that could be used as a guide for the quality standards of an organisation; the code is ISO 9000. (ISO upholds that quality in an organisation is upheld by specific management principles for quality).

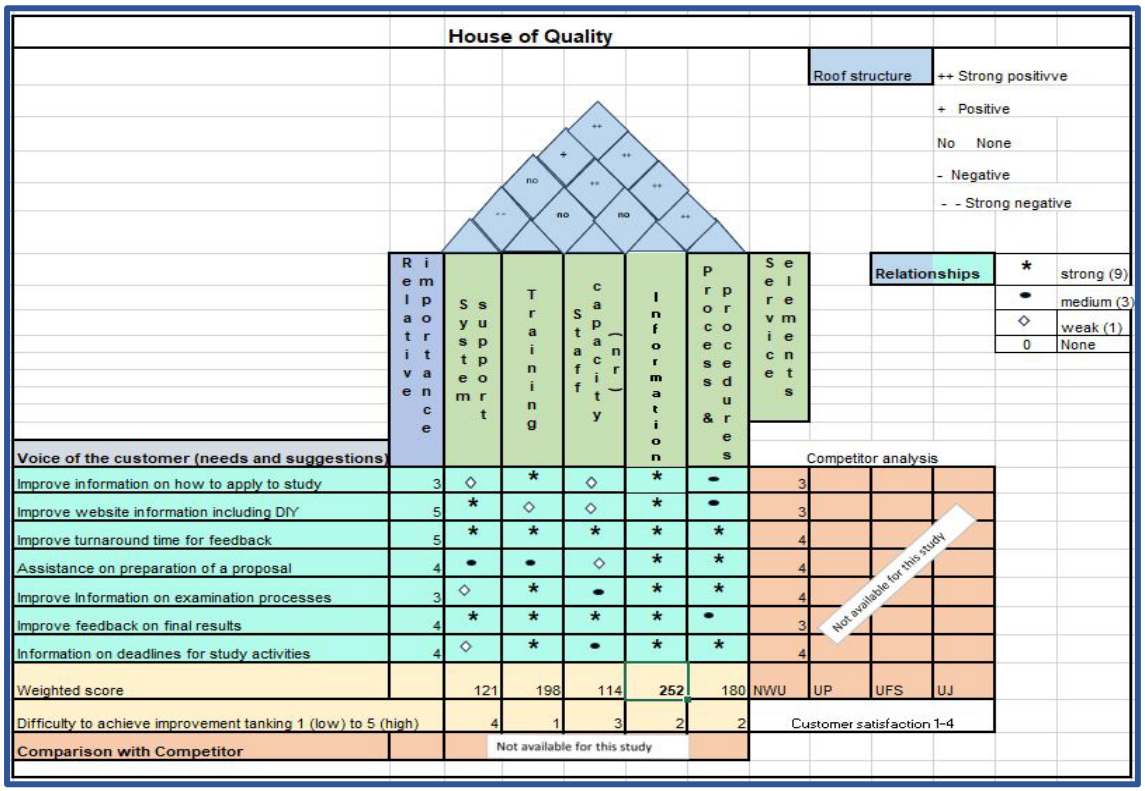
The quality principles relevant to this study in services and customer satisfaction is underscored: 1) leadership that is given by top management, 2) customer satisfaction, 3) continuous improvement, 4) involvement of people (customers and staff), 5) process analysis, 6) the use of data-driven decision making, 7) a systems approach to management, 8) mutually beneficial supplier relationships (Heizer *et al*., 2020:250). According to Sabale (2019), a HOQ is also referred to as customer-driven engineering. This tool is used to ensure that customer needs (*See*: Figure 5.1) are met by an organisation. Several comments that were collected from the secondary data, that informed the Customer needs section of the HOQ, is listed below. The HOQ tool enables 'services' managers to utilise customer requirements to introduce process improvements. The HOQ aims to address the improvement of processes. Heizer *et al*., (2020:250) highlight that the lack of quality leads to greater

expenses for an organisation. The other side of the coin is for an organisation to invest in quality to ensure that services are correct the first time. These expenses are the costs incurred:

- to prevent mistakes, to test services and products (such as the website and online application platforms),
- due to system failures that occur before the information goes to the student (such as formula errors that result in incorrectly calculated marks),
- due to mistakes that go out to the student (such as an incorrect graduation certificate, with cost to replicate the certificate and reputation damage to the NWU).

The *elements of services* in the HOQ refer to where investment regarding the 'cost of quality' should be made. The *needs of the customer* and the *elements of services* are calculated to determine which investment would be the most important to customers. From the information in the HOQ, most customers indicated that there is a need to improve the distribution of information relevant to their studies. The information element scored 552, which is the highest score (*See:* Figure 5.1 below).

Figure 5.1 The Higher Degree Administration office House of Quality



Source: Fitzsimmons and Fitzsimmons (2008:116-118) adapted by the researcher.

The HOQ is used to address the second OM strategic decision relevant for this study, which is process design. Process design is an element that combines the voice of the customer and the quality of the service, creating a cycle of continuous improvement that is based on the recommendations collected from customers about the product and their needs. The tool that is most effective for meeting customer needs is Quality Function Deployment, which is also called the House of Quality (Sabale, 2019). Sabale (2019) also mentions that the outcome of building a HOQ is to improve the process design of the services. First, from the HOQ in this study, the element that would need the most improvement is the information that is made available to the HDA office's customers. Second, providing tailored training to the staff to ensure that they are competent to perform tasks is needed. Third, customers improved processes and procedures are needed, which would increase the overall quality of services rendered to the HDA office's customers.

5.5 Limitations of the study

Kumar (2017:8) also mentions that the limitations and interruptions in social sciences are caused by the human factor during research efforts and data collection. There are four identifiable limitations or gaps regarding this research project, namely:

1) The surveys were not indicated as mandatory for all HDA staff to have their services measured. As a result, not all the staff members added the link to the survey in their emails to customers. The survey, therefore, excludes the evaluation of the entire HDA team of staff. The researcher deduces that it was likely that high-performance staff members were the ones who provided the link to the survey, as they were also arguably sure that it would add to their performance rating in the end.
2) The main goal of the surveys was to measure customer satisfaction. It was part of the quality assurance project of the HDA mentioned in Chapter 3. The SERVQUAL framework was not used when the original surveys were compiled. Nevertheless, because SERVQUAL is an accepted framework for measuring customer satisfaction, it was used in the analysis of the data collected from the surveys.
3) The secondary data used in this study excluded walk-in customers' feedback, as well as feedback after interactions over the phone. The survey

exclusively provided information on participants who interacted with the HDA office via email. In terms of the HDA staff's interaction with their customers, the emails platform is used the most.

4) The aspect of variability of services is a limitation. The major challenge for services is the variability of performance due to human and technological factors. The variability of services affects the employees' quality of output (Haksever & Render, 2017:9). In a service setting, precise measuring of the selected service elements under investigation is a challenge, as confirmed by authors consulted in the literature study.

For future prospects and for continuous improvement to be established in HDA, two of these limitations mentioned will be addressed. Firstly, the surveys will be made mandatory for staff to have in their email signatures. Secondly, the SERVQUAL questionnaire will be used to ensure that the process is supported by an accepted scientific instrument.

5.6 Contribution of the study

Effective operations are of paramount importance for the NWU to meet their goals (NWU, 2018b). The first and main contribution of the study is to show that effective operations are possible when using OM principles. The point of departure for this study is the NWU's promise of a high standard of services, as mentioned in the Strategy plan statements of the NWU of 2015-2025 (NWU, 2018b).

Quality and process design when implemented in operations create customer satisfaction (Heizer *et al.*, 2020:249). The study proposes that through the principles of quality, which include constant improvement and process review, the HDA office contributed to meeting the goal of providing a high standard of services to customers. The latest published NWU Strategy – 2024 and Beyond (NWU, 2023e:8) adjusted the level of expectation from a high standard to operational excellence.

According to Fitzsimmons and Fitzsimmons (2008:107), service quality should be of such a high standard that one should be able to offer a service guarantee (where customer dissatisfaction leads to refunding or some form of restoration). They believe that service quality is not enough. The true competitive advantage is found

in providing service excellence. Giving customers 'superior quality' in their interactions should be the end goal of a services department. The drive for operational excellence as a standard for the HDA office is a proposed future prospect to follow in this study. This goal is aligned with the new strategy of the NWU mentioned above.

The second contribution of the study is to show that this office contributed to promoting the NWU in the market. As indicated in the questions of the survey, most participants would promote the NWU for studies to their peers. Customer satisfaction also creates a competitive edge. According to NWU (2023e), the higher education 'landscape' is very competitive and the NWU strives to keep up by following through with its new strategy for 2024 and beyond (NWU, 2023e:8).

The third contribution of this study is to highlight the benefit of surveys for measuring customers' satisfaction with operations as well as staff performance. The operations in the HDA office entail services that meet customers' intangible needs. The customers of the HDA office who are students wish to advance in their careers by completing a masters' or doctoral degree. This leads to constant interactions with the HDA office (NWU, 2020b). These interactions create an opportunity for customers to be either satisfied or dissatisfied with the services rendered. Heizer *et al*. (2016: 213) state that the operations manager's (or the services manager's) task is to regard these comments as 'moments of truth' between the customer and the services provider. They also state that these comments must be utilised in the design processes that 'meet or exceed' customer expectations. Some of the survey responses included staff names; this makes it possible to use the data for a secondary purpose, which is staff performance evaluation.

Last, the expected contribution to the body of knowledge of OM is to add information on the use of OM principles, -techniques, and -tools towards measuring quality, and process design in a services setting. The contribution collected from the HOQ is presented in the concluding thoughts.

5.7 Concluding thoughts

This chapter addressed the following research objectives:

- To build an HOQ based on customer recommendations which were included in the surveys.

- To use the information gathered from the literature study, the survey findings, and the HOQ to make recommendations for establishing a culture of continuous improvement concerning service excellence at the HDA office.

In the end, this study aimed to prove that the implementation of selected OM elements, -principles, and -tools will improve operations. OM tools that guide the continuous improvement of processes have also been investigated by using the House of Quality tool. The expected outcome of implementing continuous improvement in the operations of HDA is service excellence.

In conclusion to the section on understanding services as an operation, the researcher finds that the studied literature supports the notion that effective operations are based on OM principles. The researcher also finds that the data collected confirms that a high level of services were rendered by the HDA office.

The two OM principles that relate to services, were used in this study. They were quality and process design. The application of OM principles assisted the HDA office in meeting the standards and expectations set by customers. The findings from the surveys also confirm that the use of OM principles improved the services rendered to customers.

The responses collected also inform the way forward which is continuous improvement. Continuous improvement, when it forms a part of the organisational culture, positively affects process design. The aim of improved process design is to provide the needed improvement in services rendered to exceed customer expectations, which is necessary to reach levels of service excellence.

There was a high percentage of comments collected on customers' satisfaction with the HDA office's services. Finally, it could be concluded that the HDA office contributed (in terms of the strategy of the NWU) towards gaining a competitive edge against its peer institutions.

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Investigating customer expectation and customer satisfaction in a services department of the NWU using selected Operations Management principles

Submitted to the North-West University in partial fulfilment of the requirements of the degree: Masters of Business Administration at the North-West University.

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ii Survey questions

5 Question survey example

Higher Degrees Administration

Thank you for being part of the North-West University as a Masters/Doctoral student/ stakeholder. The Higher Degrees Administration (HDA) department would appreciate it if you could take a few minutes to complete this survey. We value your feedback to enhance future application processes.

* Indicates required question

1. What is your main role? *

Mark only one oval.

- ◯ Academic staff
- ◯ Support staff
- ◯ Student
- ◯ Examiner
- ◯ Prospective student
- ◯ Alumni
- ◯ Other: _____

2. Identify your campus: *

Mark only one oval.

- ◯ Mahikeng campus
- ◯ Potchefstroom campus
- ◯ Vanderbijlpark campus

8 Question survey example

Higher Degrees Administration

Thank you for being part of the North-West University as a Masters/Doctoral student/ stakeholder. The Higher Degrees Administration (HDA) department would appreciate it if you could take a few minutes to complete this survey. We value your feedback to enhance future application processes.

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1. What is your main role? *

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- ◯ Academic staff
- ◯ Support staff
- ◯ Student
- ◯ Examiner
- ◯ Other: _____

2. Identify your campus: *

Mark only one oval.

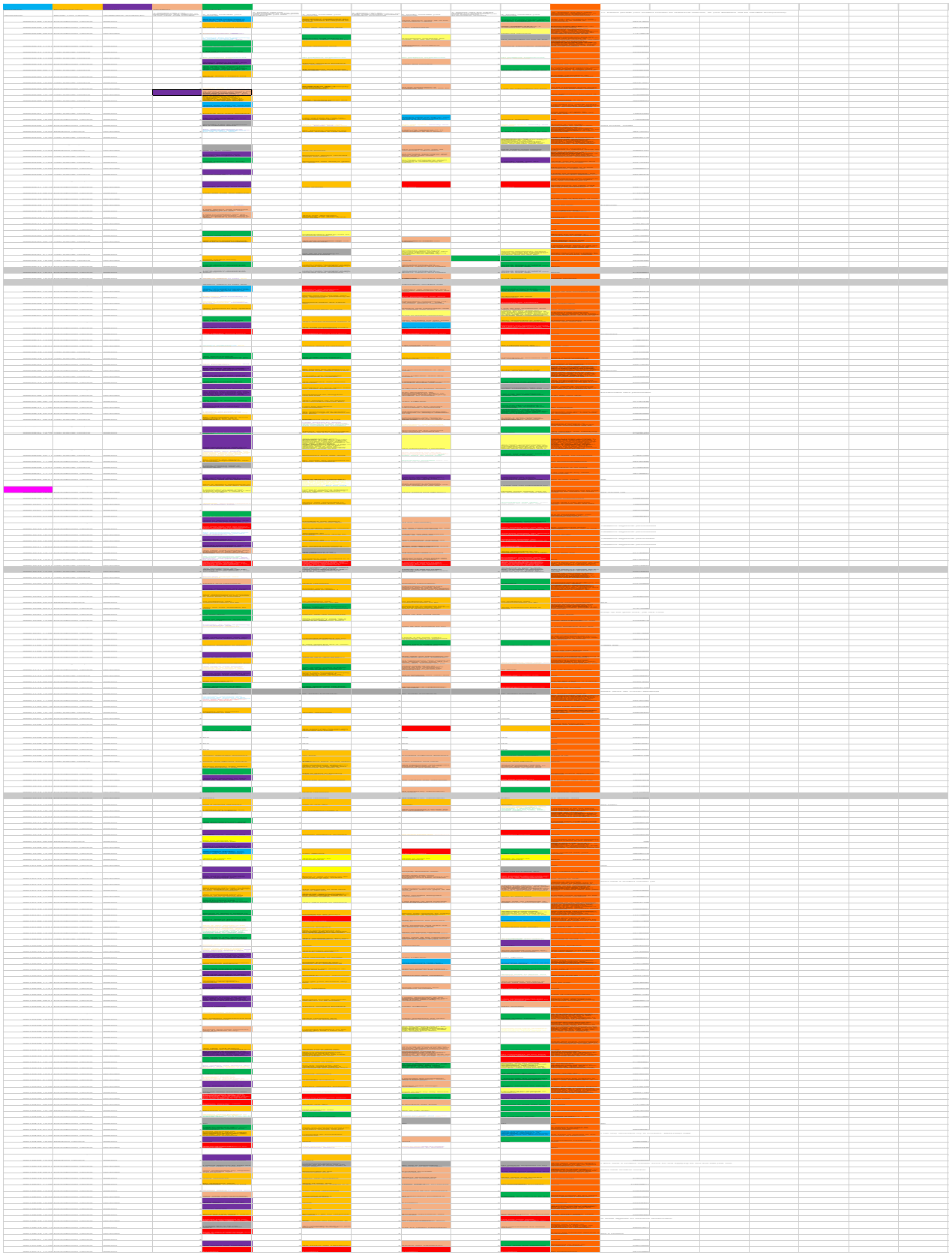
- ◯ Mahikeng campus
- ◯ Potchefstroom campus
- ◯ Vanderbijlpark campus

iii Surveys with data analysis

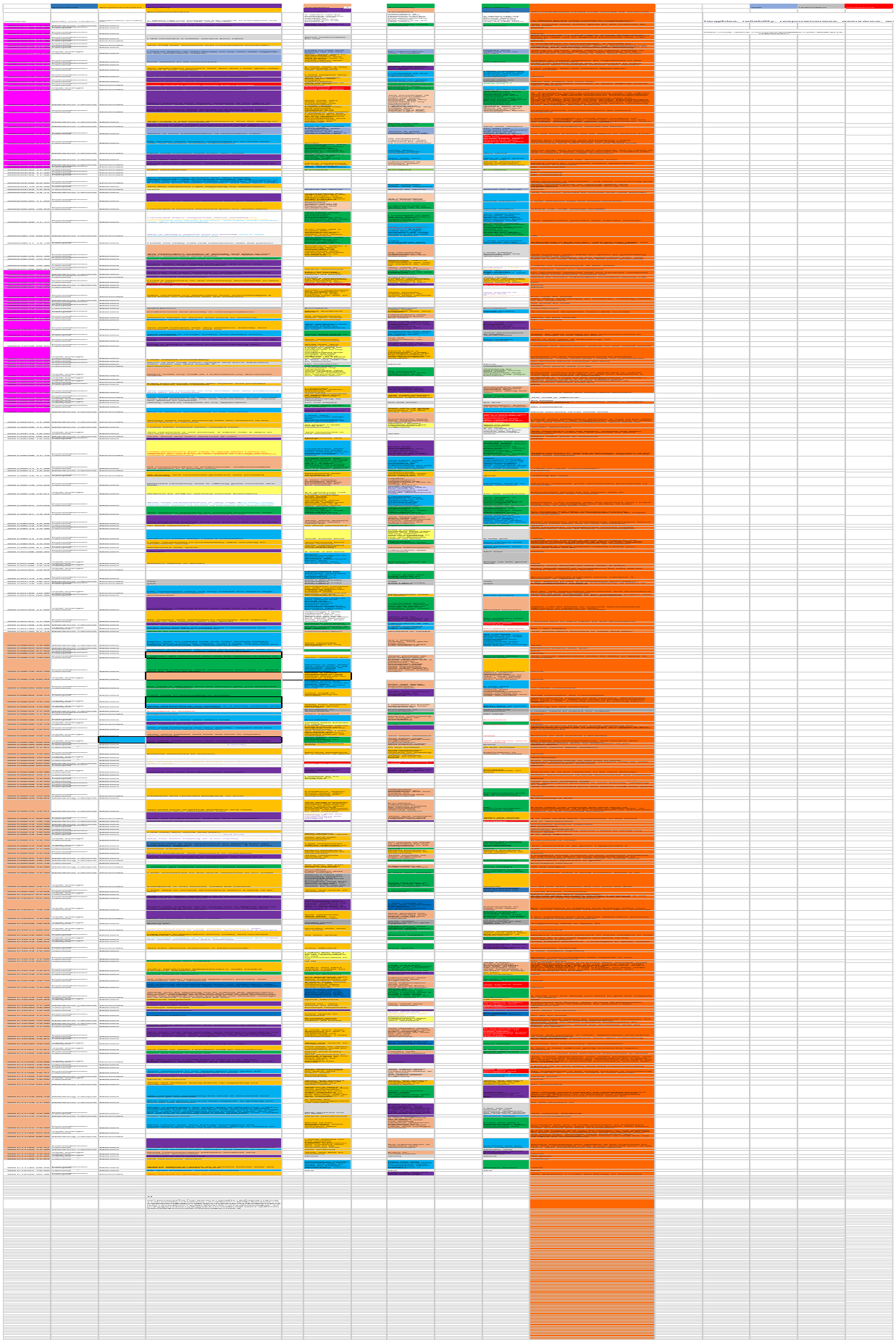
Survey 187

Timestamp	Identify your campus:	Qualification enrolled f	1. Please rate your e	2. Kindly motivate your response	3. Please rate the	4. Kindly motivate your response	5. Please rate the sufficiency of info	6. Kindly motivate your response	7. Please rate the overall qualit	8. Kindly motivate your respons	9. Would you recomm	10. Please list any other	11. Please provide you
1/21/2020 14:40:55	Mahikeng campus	Doctorate	4	She is kind and very considerate (Dipuo Maseng)	4	She always respond on time in her ema	4	she communicate very good	4	she is good and assisted me w	Yes	so far with the help she gi	21402183
1/27/2020 14:55:45	Potchefstroom campus	Doctorate	4	Quick to respond.	4	Quick to respond.	4	Provided the appropriate documentatior	4	Had no problems thus far	Yes	No comment.	24698245
1/29/2020 10:47:38	Potchefstroom campus	Doctorate	3	They assisted me when I was unsure about the administration regarding t	3	I got a reply within a day or two.	3	They gave a straightforward answer.	3	The guidelines are very clear ab	Yes	No improvement suggesti	20574266
1/29/2020 11:57:29	Potchefstroom campus	Masters	4	I was assisted by Ms Lauren Delport. She was very kind, Helpful, motivat	4	I was registered in less than an Hour	4	Was informed about the helpful bursary	4	NO hustle	Yes	I was encouraged by the a	16479025
2/3/2020 11:36:17	Potchefstroom campus	Doctorate	4	Always friendly and helpful	4	Appreciate the quick response	4		4		Yes	maybe just send a confirr	10214380
2/4/2020 7:55:51	Potchefstroom campus	Doctorate	4	Very kind, quick to reply. Awesome	4	Quick response	3	good	4	Very good administration	Yes	Keep up the good work.	26403366
2/6/2020 14:31:27	Potchefstroom campus	Doctorate	3	As Friendly as one can be in an email.	4	As fast as expected	3	Sufficient	3	Sufficient	Yes	None	22965092
2/11/2020 11:43:26	Potchefstroom campus	Masters	4	Quick and positive feedback	4	Quick and positive feedback	4	Quick and positive feedback	4	Quick and positive feedback	Yes	None	36890553
2/11/2020 13:11:47	Potchefstroom campus	Masters	4	Quick response to emails, provided the necessary information in a clear r	4	Same day or next day response	4	Provided the forms to be completed in t	4	See above responses	Yes	The fee structure for the c	21642168
2/19/2020 17:15:10	Potchefstroom campus	Doctorate	4	Very eager to help	4	The staff members are very friendly	4	Staff members are very much knowledg	4	I am very much satisfied	Yes	Not to my knowledge	26446863
2/20/2020 14:27:37	Vaal-Triangle campus	Doctorate	4	I have got all assistance need with a kind approach	4	I receive feedback as soon as possible	4	information was provided where needed	4	I was provided every service rec	Yes	If possible allow post grad	26767007
2/23/2020 10:40:14	Vaal-Triangle campus	Masters	4	She went above and beyond her duty to help me when I was struggling in	4	She is always available and ready to he	4	She readily provided me with all the rele	4	The whole registration process	Yes	Keep up the good work.	33381240
2/24/2020 9:50:40	Potchefstroom campus	Masters	4	They speak warmly give you contacts if it's something beyond them	4	They respond fast	3	Provide alternative contacts that could l	3	Though it took long than I expec	Yes	Online registration	37066498
2/24/2020 13:32:03	Mahikeng campus	Doctorate	4	Ms Maseng was very nice and willing to assist me with my registration	4	She was very quick	4	Very sufficient	4	Highly pleased	Yes	Increase the staff	33102643
2/24/2020 14:18:09	Vaal-Triangle campus	Doctorate	4	Always friendly	4	Always received prompt responses, nev	4	Guideline documents make it very easy	4	Very professional	Yes	Please keep it on this sta	12386316
3/3/2020 16:01:37	Mahikeng campus	Masters	4		4		4		4		Yes	Kindly upload the step by	31415695
3/3/2020 17:51:17	Mahikeng campus	Doctorate	4	she smiles even when she is pressured	4	she responds promptly	4	she provides you with all neccessary in	4	she is excellent	Yes	Registration procedure sh	33663157
3/5/2020 16:14:30	Potchefstroom campus	Doctorate	4	They are quite friendly and willing to help	4	Their response is prompt enough, not up	4	Always ready to provide me with neede	4	Superb quality and impressive	Yes	International students find	36634522
3/6/2020 16:20:21	Potchefstroom campus	Masters	4		4		4		4		Yes	None	30425069
3/16/2020 10:04:30	Potchefstroom campus	Doctorate	3		3		3		3		Yes	TELEPHONES ARE NEV	16373758
3/17/2020 9:55:34	Mahikeng campus	Doctorate	4	Dipuo is very accomodating, friendly, politeful and respectful	4		4		4	It is excellent	Yes	HDA staff can always do	31572308
3/18/2020 20:18:12	Mahikeng campus	Doctorate	4	The HDA staff member (Ms Dipuo) is very friendly, cordial and always rea	4	She attends to mails and calls with rapi	4	She always provide detailed informatior	4	The overall service delivery is su	Yes	The registration process c	28293622
3/25/2020 16:45:57	Potchefstroom campus	Doctorate	2	THE First time I went to the one responsible for EDucation. She was rude	4	Within 10 minutes my particulars was	4	she explained in detail application fees	3	SAndra Horn was great but HDA	No	please advice the HDA in	17142024
4/20/2020 10:46:47	Vaal-Triangle campus	Masters	1	I have been sending emails for a week now with no response with regards	1	Same as above	1	Same as above	1	No response	No	Since the lockdown and w	23031395
4/24/2020 15:16:09	Potchefstroom campus	Masters	4		4		3		4		Yes	None	20707323
4/30/2020 16:05:07	Potchefstroom campus	Masters	4	Very helpful and warm.	3	Despite the hindrances brought upon by	4	Clear and concise information and corre	4	Very professional.	Yes	None.	37667874
5/25/2020 9:58:12	Potchefstroom campus	Masters	4	Sandra Horn and Eurika van Schalkwyk go out of their way to help me. In	4	My emails are answered instantaneousl	4	I am supplied with information even befo	4	I am about to register and I am	Yes	I studied at a few other te	20865201
5/25/2020 10:58:27	Potchefstroom campus	Masters	4	She was friendly and assisted me	3	It didn't take time to respond	2	I was referred	3		Yes	To improve the inquiry	36404810
5/29/2020 17:17:45	Potchefstroom campus	Masters	4	I received warm responses which showed the willingness of the HDA staf	4	The HDA staff responded timeously esp	4	i managed to get all the necessary info	4	The registration process was m	Yes	-the registration process v	37201069
6/10/2020 9:03:56	Mahikeng campus	Doctorate	4		4		4		3		Yes	Nil	33676534
7/7/2020 15:57:54	Potchefstroom campus	Masters	3	I don't of inquire much, the help I got in January and February is enough f	4	Their response is efficient and concise.	3	It depends on responds to your queries	4	I personally loved how Suna Me	Yes	Please include informatio	25765647
7/13/2020 14:16:10	Vaal-Triangle campus	Doctorate	4	Always friendly and quick to assist with student queries	4	A pleasure working with the administrati	4	Sufficient information was available thro	4		Yes	Thank you for your contin	21243549
7/13/2020 14:17:50	Vaal-Triangle campus	Doctorate	4	Excellent service from staff member	4	Staff member provide feedback promptly	4	The processes are explained step-by-s	3	Registration took a while, but it	Yes	Registration of higher deg	23990384
7/13/2020 14:23:45	Vaal-Triangle campus	Doctorate	4	On point	4	Superb	4	Bravo	4	Exceptionally good	Yes	None	35383194
7/13/2020 14:43:02	Vaal-Triangle campus	Masters	4		4		4	no comment	4	The registration assitance was	Yes	None. The registration pr	31083137
7/13/2020 14:48:47	Vaal-Triangle campus	Doctorate	4		3		3		3		Yes	Keep up the good work. (	11097019
7/13/2020 14:51:09	Vaal-Triangle campus	Doctorate	4	Just very helpful in a very difficult COVID time	4	I never had to wait long	4	I received everything I needed	4	They told me eveything I neede	Yes	none	33131457
7/13/2020 15:08:48	Vaal-Triangle campus	Doctorate	4	Always kind and professional	4	Prompt and efficient	4	with each correspondence sufficient info	3	I had some experiences where	Yes	For part time students stu	12403768
7/13/2020 15:49:42	Vaal-Triangle campus	Doctorate	3	for those i had personal contact with they had been good to me	2	some of them seems busy with other er	3	in my case i was given enough attentio	3	i did not experience any challer	Yes	giving feedback to interna	33403198
7/13/2020 17:49:25	Vaal-Triangle campus	Masters	4	They always got back to us within a very short period of time	4	They were very quick to respond to ema	4	We always understood what they need	4	Excellent service	No	The registration process v	11179015
7/13/2020 18:54:17	Vaal-Triangle campus	Masters	3	I haven't really interacted with the team	2	It took a number of weeks	3	Sufficient information was provided	2	It's relatively good	Yes	I believe NWU is a good i	33198209
7/14/2020 8:20:07	Vaal-Triangle campus	Masters	4	Immediate correction of error detected	3		3		3		Yes	A step by step guide of p	33236976
7/15/2020 10:52:38	Vaal-Triangle campus	Masters	3	Friendliness of the staff	3		3		3		Yes	none	16976788
7/17/2020 11:32:41	Vaal-Triangle campus	Masters	3	the HDA staff has been nothing but appreciate.	3	They are efficient in their response.	3	They go beyond the term sufficient, the	3	It was quick and had no issues	Yes	To keep up with the same	25898639
7/22/2020 20:27:30	Potchefstroom campus	Masters	4	Helpful friendly	4	Quick response time	4	clear instructions	4	user friendly	Yes	Im happy with my service	11073756
8/11/2020 16:03:50	Vaal-Triangle campus	Masters	3		4	Historically terrible, but this last week e	3		4		Yes	Registration process spe	21190275
8/12/2020 21:32:16	Vaal-Triangle campus	Masters	4	Speedy reply and eager to help.	4	Within 24 hours.	3	Wasn't able to submit my NOS immedi	4		Yes	None	22807438
8/15/2020 11:55:17	Potchefstroom campus	Masters	3	Good Communication with regards to my application	3	Quick response	3	It made it easy to apply though it was r	3	Even this communication show	Yes	Kindly provide an automa	38157748
8/21/2020 12:41:08	Potchefstroom campus	Doctorate	4	She really want to assist	4	Quick response	4	Provided guidance	4	Willing to assist	Yes	Processes are in order	24487678
9/3/2020 22:46:42	Potchefstroom campus	Masters	4	I hadrecieved feedback	4	application was easy	4		4		Yes	none	39624420
9/10/2020 23:43:37	Potchefstroom campus	Masters	4		4		4		4		Yes	Perfect	28704010
9/14/2020 15:21:33	Vaal-Triangle campus	Masters	4	Very effective and friendly	4	Was probably 1 week for title to be regis	4		4		Yes	none	21487170
9/14/2020 19:04:36	Vaal-Triangle campus	Masters	3	Always willing to listen and assist	3	The response time is usually within 24 h	3	Very detailed information	4	Once you complete the requirec	Yes	None	16076788
9/15/2020 8:21:09	Vaal-Triangle campus	Doctorate	4	Prompt and friendly service	4	very quick	4	All information provided	4	Very quick and even responses	Yes	Not applicable	12386316
9/18/2020 15:06:07	Vaal-Triangle campus	Doctorate	4		4	Good feedback rate, if you have questio	4	Very forthcoming and willing to assist,	4		Yes	I have no comments, my	21881014
10/6/2020 15:44:55	Vaal-Triangle campus	Masters	3	No problems, efficient and helpful staff.	3		3		3		Yes		12297240
10/14/2020 21:54:24	Vaal-Triangle campus	Masters	4	they make information available and respond to all quries	4	They respond quickly with reliable inforn	4	the information is sufficient enough and	4	I registered with a wrong camp	Yes	non	27754316
10/14/2020 21:54:34	Vaal-Triangle campus	Masters	4	they make information available and respond to all quries	4	They respond quickly with reliable inforn	4	the information is sufficient enough and	4	I registered with a wrong camp	Yes	non	27754316
10/21/2020 19:17:08	Potchefstroom campus	Masters	4	You are the best staff member I ever met	4	Your feedback is always up to standard	4	Perfect updates	4	Always appreciated.	Yes	Fees for the course	40393518
11/3/2020 15:29:05	Vaal-Triangle campus	Doctorate	3		3		4		3		Yes	None.	20200800
11/11/2020 17:47:40	Potchefstroom campus	Masters	3	Gives feedback immediately and helps whenever they can with registratic	4	Feedback is quicker	3	Some of the information is too complec	3	They direct you to the relevant p	Yes	When registaring post gra	21538034
11/17/2020 20:15:47	Vaal-Triangle campus	Masters	4	Good efficient service	4		4	The staff members are responsive and c	4		Yes	Nothing- The team is very	33056366
12/7/2020 10:38:32	Potchefstroom campus	Doctorate	3		3		3		3		Yes	Improve on online commu	26823055
1/15/2021 11:37:46	Potchefstroom campus	Doctorate	4		4		4		4		Yes	Everyone worked out well	34786546
1/19/2021 18:21:23	Potchefstroom campus	Masters	4	They are efficient and the process is not lonely.	3	They respond swiftly	4	The direction is clear on what to expect	3	They are supportive.	Yes	None	33426147
1/22/2021 11:49:21	Potchefstroom campus	Masters	4		4		4		4		Yes	All is good	29706343
1/25/2021 16:50:27	Vaal-Triangle campus	Masters	4	They have been professional and good at corresponding emails	3	Sometimes they respond late	3	good	4	I did not need help with registra	Yes	non	32726953
1/26/2021 10:37:55	Vaal-Triangle campus	Doctorate	4	She is resourceful, time conscious and ready to assist. The service is of	4	i received an email within 10 minutes of	4	the requested international student regi	4		Yes	International registration s	33458839
2/3/2021 18:00:02	Vaal-Triangle campus	Doctorate	3	I still have not received proof of registration or acknowledgement of paym	2	As per point 2. I battled on the online re	3	Sufficient information is provided.	1	See point 2 +3 above	Yes	i was "left in the dark" afte	40174786
2/4/2021 13:00:36	Vaal-Triangle campus	Masters	3	They portrayed professionalism	1	I received feedback very late	3	Information was sufficient	3	Service is of good standard	Yes	None	23249056
2/5/2021 21:11:17	Vaal-Triangle campus	Doctorate	4	The process and feedback went smoothly and all documentation was cle	4	Process was quick.	3	All information was clear.	4	I'm pleased with the process.	Yes	Perhaps before registering	22315764
2/16/2021 7:12:03	Vaal-Triangle campus	Masters	3	I WAS SUPPOSSED TO REGISTER LAST YAER DUE TO SLOW PROC	2	I GOT RESPOND LATER	4	THEY GAVE ME IMPORTANT INFO TI	3	I GOT INSTITUTIONAL BURSUI	Yes	IMPROVE ONLINE REGI	26437864
2/16/2021 15:39:17	Potchefstroom campus	Masters	4	The replies on my emails were very friendly and informative	4	Feedback was recieved within 24hours	4	All the sufficient information was given a	4	The process was smooth withou	Yes	I am happy with the applic	26004534
3/10/2021 13:01:26	Vaal-Triangle campus	Doctorate	4	Mrs Van Rhyn was incredibly courteous and helped me immediately	4	She resolved my issue within minutes	4	Mrs Van Rhyn resolved my issue so qu	4	Only one email was sent and m	Yes	I have felt encouraged and	39633756
3/10/2021 19:22:52	Vaal-Triangle campus	Doctorate	4	The administration official was propt and effective in addressing my proble	4	Immediately you seek assistance the o	4	The HDA staff has a thorough knowledg	4	Time taken to address my prob	Yes	The registration process i	28241983
3/16/2021 12:37:26	Vaal-Triangle campus	Masters	4	They are very helpful.	3		4		4		Yes	No	No
3/25/2021 15:51:23	Potchefstroom campus	Masters	4		3		4		2	very late response on my applic	Yes	I wish NWU had responde	8,80924E+12
3/27/2021 16:22:29	Potchefstroom campus	Masters	2	late follow up	1	late eMail	2	just poor service	1	poor is poor you can't change it	No	i don't have energy, am di	ook
3/29/2021 13:07:40	Vaal-Triangle campus	Doctorate	4	Speedy feedback	3	Speedy feedback	3	Kindness	3	Quick	Yes	Availability	20985916
3/30/2021 12:54:52	Vaal-Triangle campus	Masters	3	The evaluation was fair and the interaction was polite.	2	I applied in 2020 and got no response th	4	Information on how to go about the regi	3	This year went smooth, there is	Yes	Provision of an email whe	21248125
3/30/2021 15:42:56	Mahikeng campus	Doctorate	4	Dipuo she is one of the staff that will help you with a smile. She does not	4	Her feedback is always on time whether	4	She is always giving me the right inform	4	She gives you the first class tre	Yes	I have been getting good s	21402183
4/1/2021 10:03:29	Mahikeng campus	Doctorate	4	There was swift response	4	Swift response the hurdle was closure o	3	They were present in spite of the tempo	4	It was anticipated that my regis	Yes	I am happy	24878499
4/1/2021 17:51:32	Mahikeng campus	Doctorate	4	You get the answer but not the same day maybe because of the high vol	3	They always answer and in the polite wa	3	There's a bit of confusion when it come	3	I am registering since the begin	Yes	I Think when a postgradua	37191810
4/2/2021 12:03:33	Vaal-Triangle campus	Masters	4	Response was quick	4	Response was quick	3		4		Yes	I am happy with the servic	23989440
4/8/2021 10:25:32	Mahikeng campus	Doctorate	3		3		3		3		Yes	The response is extremel	38770628
4/12/2021 16:01:34	Mahikeng campus	Doctorate	3	Staff are friendly	2	It takes time for them to reply emails ar	3	Its good	3	Fair amount as long as they ad	Yes	Always be in your office a	33646570
4/13/2021 6:59:13	Mahikeng campus	Doctorate	4	Ever since i first registered for my PhD studies in 2019, Ms Maseng has	4	Ms Dipuo Maseng's responses are tim	4	she gives adequate and sufficient inforn	4	Excellent service. She even pro	Yes	The immunisation issue, v	28088220
4/13/2021 12:56:33	Mahikeng campus	Masters	4	Great	4	Great	4	Great	4		Yes	Great	Great
4/19/2021 14:07:32	Mahikeng campus	Doctorate	4	She was really helpful as had been battling with my registration	4	She had to call me to follow up on outst	4	It was well sufficient to process my reg	4	Efficient and helpful	Yes	At times clearance for inte	32921616
4/19/2021 14:23:16	Vaal-Triangle campus	Masters	4	The prompt responses on queries	4	Timely feedback provided	4	Explicit information provided	4	Easy to read documents and co	Yes	None	24535222
4/20/2021 17:05:34	Potchefstroom campus	Masters	3	They always gives the feedback on time	4	They are good with what they do	4	They are very quick	4	We have all what we want in on	Yes	Please make sure that ca	13118498
4/21/2021 9:18:52	Vaal-Triangle campus	Masters	4	No problems whatsoever.	4	Prompt feedback.	4	Received everything I needed.	4	No issues.	Yes	No comments, process w	27010910
4/28/2021 11:48:24	Mahikeng campus	Masters	4	I received warm and friendly welcome during the registration process.	3	The turn-around time was within 24 hour	4	The information provided was sufficient	4	The quality of service was exce	Yes	N/A	24931985
4/29/2021 14:07:52	Potchefstroom campus	Masters	2		1	My application for masters was done ar	1	Rejection of the application was due to	1		No	Can it be done on time? A	Didn't have one since i
5/3/2021 15:27:51	Potchefstroom campus	Doctorate	4	Mrs Horn has been extremely helpful and efficient, responsive to many er	4		4		4		Yes	None	40888037
5/10/2021 13:40:09	Vaal-Triangle campus	Doctorate	4	They are wiling to perform their task under any situation as i am a foreigi	4	i dropped out my studies for about thre	4	i always get information in time	4	i always register in time	Yes	Everything is going well in	22637907
5/11/2021 10:28:27	Mahikeng campus	Masters	1		1		1		1		No	TURN AROUND TIME FO	28477774
5/11/2021 16:25:24	Potchefstroom campus	Masters	4		4	I never waited for more than an hour to g	4	Everything was in order.	4	Registration went smooth and h	Yes	The service and admin ca	25792822
5/18/2021 18:48:45	Mahikeng campus	Masters	3		3		3		3		Yes	None	41992024
5/19/2021 11:12:30	Potchefstroom campus	Masters	4	She look open and friendly.	4	The HDA was clearly provided me with t	4	She provided me with important informa	4	The process is quickly and is p	Yes	Quickly respond, your rec	41527437
5/21/2021 10:59:39	Vaal-Triangle campus	Masters	4	Jenna has been helpful and friendly during this whole experience, thank y	4	Her responses were quick.	4	She answered all my questions and ma	4	Very good, thank you!	Yes	n/a	25278398
5/21/2021 11:29:05	Mahikeng campus	Masters	3	It's good though good	3	Good	3	Good	3	Ok	Yes	None	24867543
5/21/2021 12:15:38	Potchefstroom campus	Masters	2		2		2		2		No	Automatically send signa	22908773
5/25/2021 17:08:26	Vaal-Triangle campus	Masters	4	Ms Petro van Rhyn didn't taketime to respond to my emails. I was able to	4		4	Not only did she respond to my emails.	3	I asked her if I could create a ne	Yes	Non	23772549
5/26/2021 2:15:03	Potchefstroom campus	Doctorate	4	They respond quickly	3	Covid has slowed down everything	4	All information is supplied	4	They are there for you	Yes	I recommend the institutio	31415288
6/1/2021 14:23:46	Vaal-Triangle campus	Masters	4		4		4		4		Yes	All is well	17002818
6/8/2021 13:36:06	Mahikeng campus	Doctorate	4	very helpful and patient	4		4		4		Yes	No suggestions	39062090
6/17/2021 12:29:31	Potchefstroom campus	Masters	3		3		3		4		Yes	none	23292873
6/21/2021 17:14:23	Mahikeng campus	Doctorate	4	She is always willing to help and give necessary assistance	3	She responds to her email	4	She gives the required information wher	4	They are prompt	Yes	The services are okay by	31441564
6/28/2021 11:48:48	Potchefstroom campus	Doctorate	3		3		3		3		Yes	Keep it up	27407640
7/2/2021 9:37:23	Potchefstroom campus	Masters	4	Best service	2	Maybe due to Covid 19	3	Nothing	3	Nothing	Yes	Nothing	31477550
7/5/2021 8:31:35	Mahikeng campus	Masters	4	i have recieved accurate links	4	i have recieved accurate links	4		4	i have recieved accurate links	Yes	to do it electronically for r	none
7/12/2021 13:52:25	Potchefstroom campus	Doctorate	4		4		4		4		Yes	I am really impressed wit	42201012
7/17/2021 15:36:17	Mahikeng campus	Masters	4		4	I sent my application on 28 June 2021 a	2	There was no further information provide	3	The application was acknowled	Yes	More information to be pro	No student number has
7/29/2021 13:04:33	Mahikeng campus	Masters	4	The HDA staff member are always going an extra mile to assist, no matt	4	They assist immediately and even chec	4	they explain very cleary all the needed	4	service is very good and apprec	Yes	the registration process is	43044840
8/2/2021 18:59:49	Mahikeng campus	Masters	2	I'm a helpful person	2	Very patiently at working	2	Persistent person	2	Personality pero	Yes	Accept my proposal	I didn't receive any stu
8/4/2021 18:11:57	Potchefstroom campus	Masters	3		4	Happy with their correspondence	3	All needed information is provided	3	The service is very good	Yes	Keep the good work	4080
8/17/2021 10:51:20	Potchefstroom campus	Doctorate	4	They are very supportive	3	Good turnaround	3	Commendable	3	They provide adequate informati	Yes	Send out reminders to stu	29379776
8/18/2021 14:54:20	Vaal-Triangle campus	Doctorate	4	It was a good experience. Everything went smoothly.	3		3		4		Yes	N/A	22391339
8/22/2021 19:20:00	Potchefstroom campus	Masters	4	Constant communication and information sharing. I found the process sm	4	The response time is fair and there is co	4	Excellent service	4	The process was smooth	Yes	The process was smooth	35057084
8/24/2021 17:32:06	Vaal-Triangle campus	Masters	4	I have never seen any problems with the Admin staff	4	The service was quicker than I expectec	4	They did more than what I asked for	4	The forms were sent immediate	Yes	More engagements to tea	13172921
8/26/2021 10:59:10	Mahikeng campus	Doctorate	4	I have to be attended to timeously. My colleagues are also happy with the	3	They responded to my PhD enquiry afte	4	I was given all links for application and r	3	i have not yet registered but so	Yes	Not at the moment since	Not yet registered
9/1/2021 1:14:13	Vaal-Triangle campus	Masters	4		3	In most cases communication was fast,	4		4		Yes	I think overall the prosecc	30304288
9/2/2021 17:26:38	Vaal-Triangle campus	Masters	4	They have notified me about outstanding documentation and mentioned h	4	They have informed me about everything	4	Told me where i should email my docur	4	Everything i need to do has bee	Yes	everything was perfect	3123115
9/6/2021 18:28:45	Vaal-Triangle campus	Masters	4	Responded well to my questions.	4	She was on leave and she immediately	4	She helped me to fill in the form.	4	All my emails were responded t	Yes	Be able to make the form	43951570
9/7/2021 9:41:52	Vaal-Triangle campus	Masters	4	They are always supportive and helpful	2	The turnaround time seem to be a bit slo	4	They provide latest information	2	Some times I find it hard to get	Yes	The university may have e	31192858
9/7/2021 14:40:23	Potchefstroom campus	Masters	4	They are kin to help	1	I waited so long for the feedback	4		4		Yes	I am not yet enrolled	32289154
9/20/2021 11:16:49	Vaal-Triangle campus	Doctorate	4	Good response and feedback from HDA staff members	4	Quick and effective services	3	Adequate response.	3	Only had problems with registra	Yes	Registration went fairly we	23990384
9/20/2021 12:51:07	Mahikeng campus	Masters	4	The university make me proud with the response i received looking forwa	4	the turnaround quick and perfect	4	The response from the staffs were exce	4	it was a great response and the	Yes	nothing i can think of now	44191839
9/20/2021 15:44:30	Vaal-Triangle campus	Masters	4	Thank you for accepting me	4		4		4		Yes	40	40448185
9/20/2021 15:45:41	Vaal-Triangle campus	Masters	4		4		4		4		Yes	Thank you	40448185
9/22/2021 15:51:29	Mahikeng campus	Masters	4	They respond to any enquiry in a friendly and willingness manner	3	They respondly rapidly to enquries	3	They provide sufficient information	3	The provide satisfactory quality	Yes	I suggest the study scho	16875924
9/22/2021 16:12:31	Mahikeng campus	Doctorate	4		4		4		4		Yes	Fast track registration co	10441808
9/28/2021 13:42:10	Vaal-Triangle campus	Masters	4	The HDA staff member was very professional and treated me with respec	3	I received feedback in time.	4	I have received all relevant documents.	3	The service was very profession	Yes	Keep on being profession	27640507
9/28/2021 20:05:34	Vaal-Triangle campus	Masters	3	they attend to all problems	3	feedback is provided	3	sufficient information is provided	4	i was assisted to register	Yes	excellent	12251240
9/29/2021 13:38:05	Mahikeng campus	Doctorate	4	Excellent job	4	Staff know their quality job	3	Sufficient enough	4	Satiesfactory	Yes	Everything is perfect	16927222
9/29/2021 14:35:55	Mahikeng campus	Doctorate	4	Yes, I got excellence service and information and enlightenment regardin	4	Apt	4	She gave me the accurate information	4	The service was fantastic	Yes	I think you have a very go	41406756075
9/29/2021 16:53:59	Mahikeng campus	Doctorate	4	They kept responding to inquiry emails	4	Same day responce	4	Gave me links to get more information,	4	Iam have submitted by applicati	Yes	The web information not c	44523254
9/30/2021 17:28:25	Vaal-Triangle campus	Doctorate	4	They are vigilant, which saves the student time from the back and forth pr	3	The waiting period was over a month, it	4		4		Yes	No comment	18034124
10/7/2021 16:11:30	Mahikeng campus	Masters	3	Prompt response is appreciated	3	Same as above	2	Not been given any	2	Not necessarily had any	Yes	Prompt response and adv	20831579
10/8/2021 19:31:49	Vaal-Triangle campus	Doctorate	3	Responded timeously to my application.	3	Prompt response	3	Prompt response	4	Prompt	Yes	None	43812058
10/12/2021 16:43:24	Vaal-Triangle campus	Doctorate	4	With Covid-19 there is very limited mobility, however, the staff made it ea	4	Everything was done in a matter of days	4	I did not have to ask for any clarity wrt t	4	Excellent quality even when the	Yes	So far, the best process e	23977167
10/14/2021 13:59:20	Potchefstroom campus	Masters	4	I've received replies very quickly	4	I've received it in one day	4		4		Yes	It was perfect	28803450
10/14/2021 20:08:03	Potchefstroom campus	Masters	4		4		4		4		Yes	No complaints	25977210
10/18/2021 15:03:47	Potchefstroom campus	Masters	4	The feedback was send to me via email after submitting my application w	3	Received feedback after two days of sub	4	All the details regarding application pro	4	The service is good	Yes	none	44479522
10/18/2021 23:40:03	Vaal-Triangle campus	Masters	4	They are very kind to assist learners to carry out their tasks	3	It came with expected time	4	They gave me detailed information	3	The assist with passion	Yes	Nothing so far, services a	37291734
10/20/2021 9:48:07	Vaal-Triangle campus	Masters	3		4		4		4		Yes	I wish they provide more v	44379420
10/21/2021 10:00:22	Potchefstroom campus	Masters	4	They were very helpful in every aspect, and replied quickly with any ques	4	I had received an answer on enquires ve	4	All the necessary forms needed to be fi	4	I had a lot of questions and unc	Yes	Clearer directions in term:	30160286
10/21/2021 12:51:55	Potchefstroom campus	Masters	3	Responded to my emails quickly	4	Quick feedback to my responses	4	Gave me good indication fo what I need	4		Yes	Make a document availab	30791154
10/25/2021 10:26:40	Mahikeng campus	Masters	3		4	Response for e-mail enquries was withir	3	Requested information was sent but wa	3		Yes	The bank details for interr	44670524
10/26/2021 17:03:20	Potchefstroom campus	Masters	4		4		4		4		Yes	-	29954126
10/27/2021 12:19:31	Potchefstroom campus	Masters	4	Helpful staff	4	Replied immediately	3		4		Yes	None	29732034
10/28/2021 16:35:02	Potchefstroom campus	Masters	4		3		3		4		Yes	pleasa improve feedback	4458525
11/2/2021 19:03:10	Potchefstroom campus	Masters	4	Great response	4	Very helpful	4	They remind me earlier	4	Easy to use	Yes	Very helpful to me, I wish	38260719
11/6/2021 13:04:06	Potchefstroom campus	Masters	4	Responsive	3	They reply fast to emails, however it's a	3		3		Yes	All is well.	27183947
11/8/2021 19:21:01	Mahikeng campus	Doctorate	4	The staff are prompt in reverting back to students enquiries and needs.	4	Feedback is super impressive.	4	I like the fact that I got referred to the re	4	I have not registered yet, but I h	Yes	Keep up with the good jot	44532385
11/12/2021 23:08:43	Mahikeng campus	Doctorate	4		4		4		4		Yes	I am happy to join the Uni	Ep4482620
11/16/2021 14:15:05	Vaal-Triangle campus	Masters	3		4	Good service	3	Provide more information	3	Good	No	Improve communication	New application
11/17/2021 14:37:39	Mahikeng campus	Doctorate	4		4		4		4		Yes	Extremely satisfied	20255705
11/22/2021 0:43:16	Vaal-Triangle campus	Masters	4	staff at university was always empathic, understanding and patient	4	staff assistance has always being helpfu	4		4		Yes	a list of topics that can be	33392382
11/22/2021 9:58:10	Potchefstroom campus	Masters	3		3		3		3		Yes	No comment	26992078
11/30/2021 19:45:39	Potchefstroom campus	Masters	4	I have found Sandra and Corene so helpful during my application process	4	I received my acceptance letter on time	4	Great service was offered by the HDA s	3	Best	Yes	None	44479522
12/2/2021 20:39:50	Potchefstroom campus	Masters	4	Very friendly	4	Very professional	3	Very sufficient	3	The quality is good	Yes	None	I do not have yet
10/18/2022 3:12:15	Vaal-Triangle campus	Masters	3	Courteous staff members whom assisted quite friendly	3	Feedback/ response was provided as so	3	Fairly sufficient	3	Very good	Yes	Too early to comment on	47584688
10/24/2022 15:42:19	Vaal-Triangle campus	Masters	4	I had some difficulty with understanding which documents were required f	4	Feedback is received quickly.	4	They make sure you are helped and att	4	They pay attention to each quer	Yes	I am happy with the level	28688392
11/1/2022 10:33:04	Vaal-Triangle campus	Masters	4	The lady I talked to was so helpful and friendly	4	Within a few minutes she responded to	4	She provided adequate information	4	Within a few minutes she answ	Yes	The service was very good	20378017
11/17/2022 13:42:10	Vaal-Triangle campus	Masters	4	Communication has been effective.	4	I would receive feedback within 1-2 work	4	I was told exactly what was required of	4	I did not experience any challer	Yes	It would be great if the tur	30875714
11/29/2022 10:41:35	Vaal-Triangle campus	Masters	4	I was so impressed by the prompt responses I would get from Petro. She	4	I never had to wait for long.	4	The information was very clear.	4	It was excellent because I neve	Yes	Thank you very much for t	40531694
12/7/2022 11:27:09	Vaal-Triangle campus	Masters	4	Very informative and answers on time	4	Answers on the same day	4	Informative	4		Yes	The outcome of the applic	33074860
12/15/2022 18:32:58	Vaal-Triangle campus	Masters	3		3		4		4		Yes	The staff is quick to respo	30806348
1/17/2023 11:23:02	Vaal-Triangle campus	Masters	4	No issue experienced as yet	4	Information and deadlines are communi	4		4	So far, there are no concerns to	Yes	None from my side	49848437
1/23/2023 20:28:24	Vaal-Triangle campus	Doctorate	4	Petro has be kind and proffessional to me.	4		4	Detail on registration process are provic	4		Yes	Online registration makes	44333153
1/28/2023 10:46:44	Vaal-Triangle campus	Doctorate	4	Always willing to help	4	The staff commits to date and achieve t	4	There is clarity on processes to follow	4	There is always a person availa	Yes	The electronic system sti	47878134
1/29/2023 17:55:57	Vaal-Triangle campus	Doctorate	4	She sent me registration forms and all necessary without even asking for	4	She has always been helpful all the time	4	I got the necessary information explaini	4	N/A	Yes	N/A	49889982
1/30/2023 12:12:47	Potchefstroom campus	Masters	4	He's very patient	3	Waiting period is very short which is goo	4	They provide you with all the answers y	4	They were very helpful	Yes	Answer phones	43188079
2/2/2023 17:36:32	Potchefstroom campus	Doctorate	4	The team is always willing to help.	3	Fairly good turnaround time	3	Pleasing	3	Have provided guidance, with th	Yes	The process could be ent	29 3 7 9 7 7 6
2/9/2023 14:24:21	Vaal-Triangle campus	Masters	4	Process was fast and easy to do	4	Process was fast and easy to do. The c	4	All required information was provided or	4	All required information was pro	Yes	The process is less stres	27192075
2/21/2023 22:22:58	Potchefstroom campus	Masters	4	Everything is done timeously	4		4	Excellent	4		Yes	The service is good. Even	31208347
2/28/2023 15:13:07	Vaal-Triangle campus	Masters	3	The website provides clear information	4	The website provides clear information	3	I got engaged the day before the closin	3	I got engaged the day before the	Yes	It would be exciting to be	33202265
3/10/2023 19:23:09	Vaal-Triangle campus	Masters	4	goes out of his way to assist students	4	doesnt take long to get back to you	4	answers all concerns	4	excellent service	Yes	avail a manual form for reg	23107375
4/12/2023 13:42:46	Vaal-Triangle campus	Doctorate	4	Very kind and helpful	4	Feedback was provided timeously	4	Sufficient information was provided	4	The assistance provided was go	Yes	No comments	23152370
5/5/2023 15:15:39	Vaal-Triangle campus	Masters	4	Quick response and advise i got to attach outstanding documents.	4	Got response same day after attaching	4		4		Yes	Everything is perfect. Kee	50120603
7/13/2023 22:21:37	Vaal-Triangle campus	Doctorate	4	Friendly and welcoming personnel. Very patient and willing to guide and a	4	Efficient service received	4	information assisted me to know what i	4	Not yet registered. I still need to	Yes	None. I am an Alumni and	24125830
7/31/2023 14:37:50	Vaal-Triangle campus	Masters	3	I'm friendly towards people and I like to communicate	3		2		3		No	I think nwu is the best uni	42520185
9/20/2023 12:34:47	Vaal-Triangle campus	Doctorate	4	The information provided was meticulous and concise	4		4		4		Yes	N/A	53263200

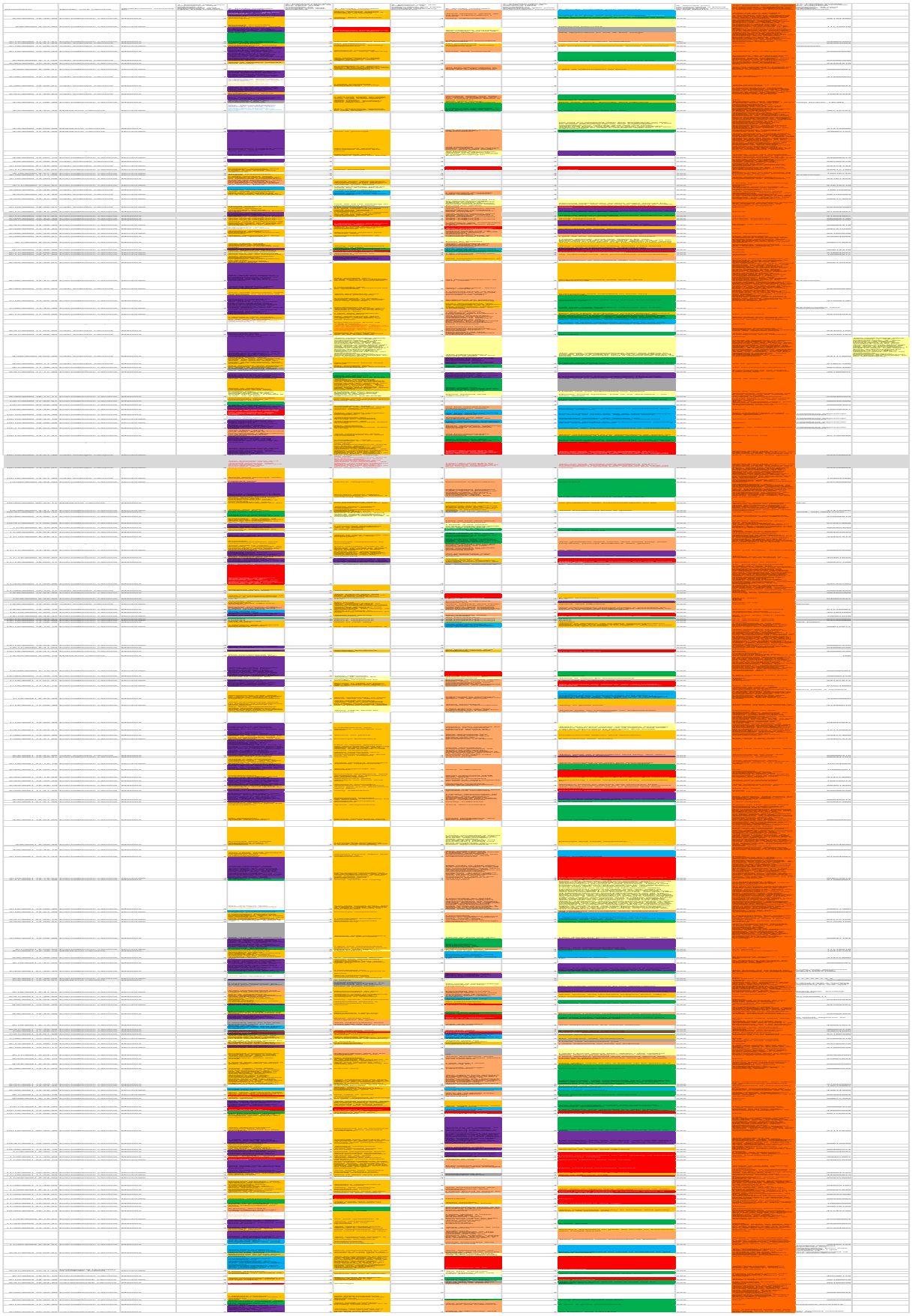
Survey 244



Survey 217



Survey 266



iv Proof of ethical clearance

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28 February 2023

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the Economic and Management Sciences Research Ethics Committee (EMS-REC) on 24/02/2023, the Economic and Management Sciences Research Ethics Committee hereby approves your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-REC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: Investigating customer expectation and customer satisfaction in a services departement of the NWU using selected operations management principles

Study Leader/Supervisor (Principal Investigator)/Researcher): Dr J Jordaan – MBA

Student: Ackermann, M (10512187)

N	W	U	-	0	1	8	3	3	-	2	2	-	A	4
Institution				Study Number						Year			Status	

Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation

Application Type:
Commencement date: 1/2/2023
Expiry date: 1/2/2024

Risk: Low

Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.

Special in process conditions of the research for approval (if applicable):

-

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- *The study leader/supervisor (principle investigator)/researcher must report in the prescribed form at to the EMS-REC:*
  - *annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and*
  - *without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.*
- *The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the EMS-REC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.*
- *Annually a number of studies may be randomly selected for an external audit.*
- *The date of approval indicates the first date that the study may be started.*

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